VOLUME LVIII
NUMBER FIVE

THE NATIONAL GEOGRAPHIC MAGAZINE

NOVEMBER, 1930

CONTENTS

TWENTY-FOUR PAGES OF ILLUSTRATIONS IN FULL COLOR

This Giant That Is New York
With 26 Illustrations FREDERICK SIMPICH

The Magnitude of the New World Metropolis
8 Full-Page Illustrations

Tempo and Color of a Great City
42 Natural-Color Photographs CLIFTON ADAMS and EDWIN L. WISHERD

Through Brazil to the Summit of Mount Roraima
With 25 Illustrations G. H. H. TATE

Viking Life in the Storm-Cursed Faeroes
With 50 Illustrations LEO HANSEN

PUBLISHED BY THE
NATIONAL GEOGRAPHIC SOCIETY
HUBBARD MEMORIAL HALL
WASHINGTON, D.C.

$3.50 A YEAR
50c THE COPY

NATIONAL GEOGRAPHIC SOCIETY

GEOGRAPHIC ADMINISTRATION BUILDINGS
SIXTEENTH AND M STREETS NORTHWEST, WASHINGTON, D. C.

GILBERT GROSVENOR, President
JOHN OLIVER LA GORCE, Vice-President
O. P. AUSTIN, Secretary
GEO. W. HUTCHISON, Associate Secretary
JOHN JOY EDSON, Treasurer
HERBERT A. POOLE, Assistant Treasurer
FREDERICK V. COVILLE, Chairman Committee on Research

EXECUTIVE STAFF OF THE NATIONAL GEOGRAPHIC MAGAZINE

GILBERT GROSVENOR, EDITOR
JOHN OLIVER LA GORCE, Associate Editor

Assistant Editors
RALPH A. GRAVES
J. R. HILDEBRAND
FREDERICK SIMPICH

Editorial Departments
ALBERT H. BUMSTEAD
Chief Cartographer
MAYNARD OWEN WILLIAMS
Chief Foreign Editorial Staff
FRANKLIN L. FISHER
Chief Illustrations Division
WILLIAM JOSEPH SHOWALTER
Research Division
MELVILLE B. GROSVENOR
Asst. Chief Illustrations Division
CHARLES MARTIN
Chief Photographic Laboratory

BOARD OF TRUSTEES

JOHN JOY EDSON
Chairman of the Board, Washington Loan & Trust Company

DAVID FAIRCHILD
Special Agricultural Explorer, U. S. Department of Agriculture

C. HART MERRIAM
Member National Academy of Sciences

O. P. AUSTIN
Statistician

GEORGE R. PUTNAM
Commissioner U. S. Bureau of Lighthouses

THEODORE W. NOYES
Editor of The Evening Star

GEORGE K. BURGESS
Director U. S. Bureau of Standards

RAYMOND S. PATTON
Director U. S. Coast and Geodetic Survey

CHARLES EVANS HUGHES
Chief Justice of the United States

JOHN J. PERSHING
General of the Armies of the United States

C. M. CHESTER
Rear Admiral U. S. Navy, Formerly Supt. U. S. Naval Observatory

J. HOWARD GORE
Prof. Emeritus Mathematics, The George Washington University

FREDERICK V. COVILLE
Botanist, U. S. Department of Agriculture

GEORGE SHIRAS, 3D
Formerly Member U. S. Congress, Faunal Naturalist and Wild-Game Photographer

JOHN OLIVER LA GORCE
Associate Editor National Geographic Magazine

ROBERT V. FLEMING
President Riggs National Bank

CALVIN COOLIDGE
Formerly President of the United States

CHARLES G. DAWES
American Ambassador to Great Britain

JOHN BARTON PAYNE
Chairman American Red Cross

A. W. GREELY
Arctic Explorer, Major General U. S. Army

GILBERT GROSVENOR
Editor of National Geographic Magazine

GEORGE OTIS SMITH
Director U. S. Geological Survey

O. H. TITTMANN
Formerly Superintendent U. S. Coast and Geodetic Survey

JOHN FOOTE, M. D.
Dean and Professor of Pediatrics, Georgetown University

ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

TO carry out the purposes for which it was founded forty-two years ago the National Geographic Society publishes this Magazine monthly. All receipts are invested in the Magazine itself or expended directly to promote geographic knowledge.

ARTICLES and photographs are desired. For material which the Magazine can use, generous remuneration is made. Contributions should be accompanied by addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resulting given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the expedition of Admiral Peary, who discovered the North Pole, and contributed $55,000 to Admiral Byrd's Antarctic Expedition.

NOT long ago The Society granted $25,000, and in addition $75,000 was given by individual members to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people.

THE Society's notable expeditions to New Mexico have pushed back the historic horizons of the Southwestern United States to a period nearly eight centuries before Columbus crossed the Atlantic. By dating the ruins of the vast communal dwellings in that region The Society's researches have solved secrets that have puzzled historians for three hundred years. The Society is sponsoring an ornithological survey of Venezuela.

TO further the study of solar radiation in relation to long range weather forecastings, The Society has appropriated $65,000 to enable the Smithsonian Institution to establish a station for six years on Mt. Brukkaros, in South West Africa.

Copyright, 1930, by National Geographic Society, Washington, D. C., in the United States and Great Britain. All rights reserved.
Entered at the Post Office at Washington, D. C., as Second-Class Mail Matter. Acceptance for mailing at special rate of postage provided for in Sec. 1103, Act of October 3, 1917, authorized July 1, 1918. Cover design and names registered in United States Patent Office. Marca Registrada.

Could YOU remember the CHRISTMAS of 1915?

Here is an unusual little incident. And it is true.

It was after dinner. We were reminiscing. The host suddenly pulled out his watch, glanced at it and went to the telephone. His wife set down her coffee cup and leaned closer to one of the guests.

"Did you see that lovely old Hamilton of John's?" she whispered. "Don't tell him, please, but we're going to give him a *new* Hamilton this Christmas."

"A great idea! How long has John had that watch?"

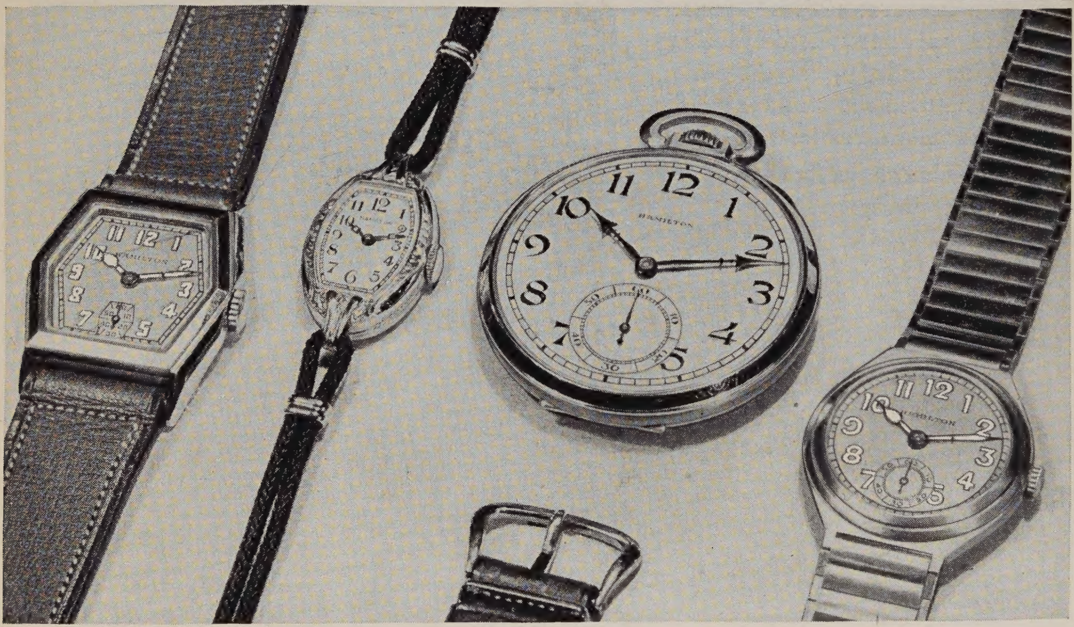
"His father gave it to him in 1915. He'll always remember that date exactly. You somehow do—when it comes to things like that."

◆ ◆ ◆

Today's Hamiltons are more modern, of course, and more gracious than the Hamiltons of yesteryear. Styles change, and so do people's tastes. But Hamiltons have the same uncanny accuracy they have always had.

If someone in your family hasn't a fine watch, we invite you—we urge you—to give him (or her) one of these new Hamiltons, so that Father or Son or Daughter will have an accurate, beautiful watch to treasure for years ahead—a watch so lovely, so precious, they will *always* remember Christmas, 1930.

Let us send you "The Timekeeper," an illustrated booklet showing all the new gift Hamiltons. Address Hamilton Watch Company, 882 Columbia Avenue, Lancaster, Pa.



Left to Right—The CAMBRIDGE, 14K natural or white gold, $125. The MONTQUR, 14K white gold, with black cord bracelet and white gold bracelet attachments, $75.

The MARSHALL, 14K natural or white gold, $75. The PALISADE, 14K filled natural or white gold, with filled gold band attached. Luminous dial no extra charge. $65.

HAMILTON

The Watch *of* Railroad Accuracy

Tune in on the Hamilton Watchman, Thursday, 8:45 P. M. (E. S. T.) over 20 stations of the Columbia Chain

FILMO

flies with the modern Argonaut

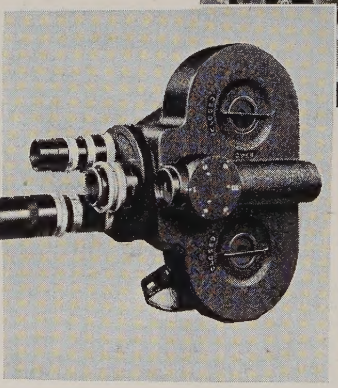
LAND, sea, and air has each its special devotees, and Filmo is the cherished companion of them all. High in the air, to scan the checkerboard below and the teeming towns, is a thrill indeed. But greater still is the unmatchable pleasure of seeing your own Filmo movies of your flight, from take-off to landing.

As on land and sea, photographic conditions in the air are inconstant, but it makes no difference to Filmo, most versatile and simply operated of personal movie cameras. It is a product of Bell & Howell, makers for more than 23 years of the professional cameras used by leading film producers, and of Eyemo, the 35 mm. hand camera used the world over for making professional movies from the air.

Ask your Filmo dealer for a demonstration, or write today for booklet "What You See, You Get."

Look for this Filmo sign—displayed by better dealers everywhere

BELL & HOWELL
FILMO



● *Filmo 70-D, "Master of all personal movie cameras." Seven film speeds, three-lens turret, variable viewfinder. $245 and up in Sesamee-locked Mayfair case. Other Filmos from $92 up. Filmo Projectors, $198 and up. Many Bell & Howell dealers offer convenient budget payment plans.*

All Filmos use 50 or 100 foot films

For black and white pictures, Filmo cameras use Eastman Safety Film (16 mm.) in the yellow box—both regular and panchromatic — obtainable at practically all dealers' handling cameras and supplies. Filmo cameras and Filmo projectors are adaptable, under license from Eastman Kodak Company, for use of Kodacolor film for home movies in full color. Cost of film covers developing and return postpaid, within the country where processed, ready to show at home or anywhere with Filmo projector.

BELL & HOWELL
FILMO

Professional Results with Amateur Ease

BELL & HOWELL Co., Dept. W, 1804 Larchmont Ave., Chicago. New York, Hollywood, London (B & H Co., Ltd.)
Established 1907

You can **Afford** the

economical General Electric Refrigerator

It has the money-saving Monitor Top!

Count up all the bottles of milk and cream that turn sour in a year—the butter that begins to have a "taste"—so that it must be used for cooking.

Count up the eggs, the meat and fruit and vegetables that must be wasted, because they are no longer fresh.

And then—count up the benefits of modern refrigeration—*electric* refrigeration—the saving of food and milk—the plentiful supply of ice cubes—the economical frozen dishes you can make.

• • •

You *can* afford the economical General Electric Refrigerator. Its mechanism—hermetically sealed in the Monitor Top—is so completely protected from air, dirt and moisture, that it runs quietly, efficiently, dependably through the years—at a cost of but a few cents a day!

Write us for our magazine, "The Silent Hostess." It contains valuable information regarding proper food preservation and its relationship to health. Address Section R-11, Electric Refrigeration Department, General Electric Company, Hanna Building, 1400 Euclid Avenue, Cleveland, Ohio.

SAUL TEPPER

Join us in the General Electric Program, broadcast every Saturday evening on a nation-wide N. B. C. network.

GENERAL ELECTRIC
ALL-STEEL REFRIGERATOR
Electric Water Coolers • Commercial Refrigerators • Electric Milk Coolers

OCEAN and DESERT . . . SNOWPEAKS and PALMS . . . ANCIENT MISSIONS and MODERN HOLLYWOOD

Ancient Spanish Missions

The blue Pacific

Orange groves, palms and sheltering snow-peaked mountains

HERE is a spot, unduplicated by any other, where the elements of many glorious vacations are contained in one compact, accessible area.

All kinds of sports are at their sportiest, all winter.

Mile-high, forest-clad mountains, their crystal lakes and snowy peaks, vie with the friendly Pacific, with its sunny beaches and pleasure-islands, for your playtime.

The sun-drenched winter desert, whose mystery and charm have made oases like Palm Springs the gathering place for world travelers, offers a thrilling new experience for those who have yet to come under its spell.

costs need not exceed

$215

a month --- while here

SEND FOR NEW FREE WINTER ITINERARY

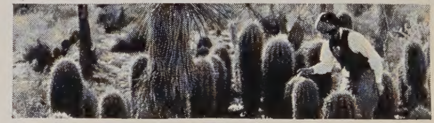
Gay Hollywood, with its movie stars and night life, and hospitable Los Angeles, fifth city in the nation, with its unique shops, theaters and cafes, will entertain you. Crumbling Spanish Missions and the atmosphere of nearby Old Mexico add fascinating foreign "color."

Because Southern California is a year 'round vacation-land, you escape the "peak prices" necessary in short-season resorts. Ample accommodations. In fact, U. S. government figures show that costs of food, rent, fuel and light here are 15.2% less than the national average. These basic factors indicate that your costs while here may easily be no more than at home!

New Free Vacation Book

A month's stay, for instance, including hotels, meals, trips to every major point of interest, sports, etc., need cost no more than $215 while here. We have prepared a suggested itinerary for such a visit, outlining just what you can see and do. Includes dozens of interesting gravure photographs of Southern California scenes, map, information about routes, and itemized daily cost figures. Send the coupon now for your free copy of this remarkable book.

If you wish *another* beautiful Southern California book—containing 71 large gravure photographs, send 4c to cover mailing cost.



Desert cactus

EXECUTIVES and INVESTORS: Los Angeles County oil fields represent an investment of 750 millions. The agricultural industry over 400 millions. The port of Los Angeles is second only to New York in volume of export tonnage.

SOUTHERN CALIFORNIA

All-Year Club of Southern California, Div. 11-P,
1151 So. Broadway, Los Angeles, Calif.

(Check if desired). ☐ Please send me *free* one-month's Illustrated Winter Itinerary with itemized figures on costs while in Southern California.

(Check if desired). ☐ 4c in stamps (postage cost) enclosed. Send "Southern California through the Camera." Also send *free* booklets about the counties I have checked.

☐ Los Angeles
☐ Los Angeles Sports
☐ Orange
☐ Riverside
☐ Santa Barbara
☐ Ventura
☐ San Diego
☐ San Bernardino

Name ________________ *Street* ________________
(Please Print Your Name and Address)
City ________________ *State* ________________

Eugene O'Neill

Alice Roosevelt Longworth

Edwin Arlington Robinson

Gamaliel Bradford

Herbert Gorman

This Famous Board of Editors Selects for You

2 Books Each Month

The Best New Book - *AND* - One of the Greatest Classics

Here's the perfect book club plan! Think of receiving the best *new* book each month AND ALSO one of the greatest of the famous classic novels—TWO books each month—both selected by a distinguished Board of Editors and both supplied in the handsome library cloth binding designed exclusively for Book League members. This is the Book League's Balanced Reading plan which doubles the entertainment and cultural value of your reading and enables you to build up a balanced library containing the cream of the world's literature.

THE BOOK LEAGUE OF AMERICA

Supplies These Two Books Each Month at 1/3 of the Usual Cost!

The Biggest Buy in the Book World Today

The Book League Plan has six main features which combine to give you the best and most for your money:

¶ 1. *A Distinguished Editorial Board* to select the best books for you. ¶ 2. *A Balanced Reading Plan* giving you the cream of the world's literature, both new and old. ¶ 3. *The Best NEW Book* each month in a handsome library cloth edition exclusively for members. ¶ 4. *A Famous Classic* selected each month and prepared in a handsome and exclusive cloth edition for League members only. ¶ 5. *Extraordinary Savings* giving League members their books at one-third of their usual cost. ¶ 6. *The Book League Monthly*—a highly interesting magazine devoted to books and authors, sent free each month.

We want to prove to you that the League plan is best and the League values greatest before you assume any cost whatever. Without risk or obligation you may

Judge for Yourself—Get the Two Current Books for

FREE EXAMINATION

Without paying a cent, you may enter your subscription and receive for free examination the two October selections: The new book is *Bertrand Russell's* THE CONQUEST OF HAPPINESS. One of the most lucid thinkers of our age writes an epochal book so sensible as to be sensational in pointing the true way in which enduring happiness can be attained. The famous classic for October is *Hawthorne's* THE SCARLET LETTER. Hester Prynne, bearing on her breast the scarlet insignia of sin, moves through a story of Colonial America that will live forever as one of the greatest revelations of the human heart. These books are representative of the two splendid selections which will be sent you, as a regular subscriber, each month.

THE SCARLET LETTER
THE CONQUEST OF HAPPINESS
BERTRAND RUSSELL

All League Books Are Bound In Cloth.

The Book League Is the Only Book Club That Gives You a Balanced Reading Program

Those great classic novels that have stood the test of time—the works of HAWTHORNE, TOLSTOY, FIELDING, MELVILLE, VOLTAIRE, BALZAC, and a host of others—have just as important a part in your reading program as the new books, whether you read for entertainment or culture, or both. The Book League is the only book club which helps you meet this important requirement.

Send No Money

Simply sign and mail the coupon below. We will send you the two current books. Within one week you may return them and owe nothing. Otherwise keep them and you will be a regular member of The Book League for twelve months, receiving the two League selections each month and all other membership privileges. You then will make a first payment of $3.00 and six monthly payments thereafter of $3.00—a total of only $21.00 for 24 splendid library volumes and the full service of the league.

Mail This Coupon

THE BOOK LEAGUE OF AMERICA,
Dept. 133, 100 Fifth Avenue, New York, N. Y.

Enroll me as a member of the League for twelve months and send me the two October selections. Within one week I may return the books, you will cancel my subscription, and I will owe nothing. Otherwise I will remit $3.00 a month for seven months—$21.00 in all—and I will receive the two League selections each month for twelve months and all other membership privileges.

Name______________________________

Address______________________________

City______________________State__________

When men develop *NERVES* WATCH YOUR HUSBAND

When men develop "nerves"—complain of exhaustion, day after day . . . when bed outbids bridge or the theatre—wives know that overwork is beginning to tell. It's time to act.

If *your* husband is giving too much of himself physically and mentally to his business . . . consider the virtues of a Winter cruise via ***Red Star*** or ***White Star Lines*** . . . to the Mediterranean or Around the World. For systematic rest . . . complete change of scene to erase wrinkles from a man's brow and chase worries from his mind . . . nothing can equal an ocean voyage.

It's really wonderful how quickly tired bodies and minds respond to this stimulating treatment! Ocean breezes keen and fresh—sunshine chockful of health! A sea trip is the sovereign cure! Take your husband and go. Let us tell you about our delightful cruises, described in the unusual booklet, "Watch Your Husband."

WORLD CRUISE

of the *Belgenland,* giant flagship of the *Red Star Line,* most famous globe-circling liner. From New York, Dec. 15, 133-day itinerary, the result of six years' experience in round-the-world cruises. *Red Star Line* in cooperation with American Express Company. $1750 (up), with shore program.

MEDITERRANEAN

—Four de luxe 46-day Cruises by *White Star* liners *Britannic* (new) and *Adriatic.* Jan. 8 and 17, Feb. 26, Mar. 7. Algiers, Italy, Greece, Holy Land, Egypt and other points of principal tourist interest. $695-$750 (up) First Class—$420 Tourist Third Cabin, both including shore program.

Address your inquiry for descriptive literature and for the booklet, "Watch Your Husband," to Desk A, I. M. M. Company, No. 1 Broadway, New York City.

WHITE STAR LINE • RED STAR LINE

INTERNATIONAL MERCANTILE MARINE COMPANY

30 PRINCIPAL OFFICES IN THE UNITED STATES AND CANADA. AUTHORIZED AGENTS EVERYWHERE.

It's Amazing what You Get

- ★ 35,000,000 *words (equals 500 books)*
- ★ 15,000 *illustrations*
- ★ 500 *maps—a complete atlas*
- ★ 3,500 *expert contributors*

Completely NEW ENCYCLOPAEDIA BRITANNICA at the Lowest Price in 60 Years

Bookcase Table Included
This handsome bookcase table, made of genuine mahogany, is included with every set.

HERE beyond question is your money's worth, and more, actually the most profitable investment you could make. That fact, and that fact alone, explains the tremendous success of the *new* Britannica. *It explains why 50,000 families have already purchased this greatest knowledge book of all times.*

The value is really amazing. Just consider what the *new* Britannica gives you! Twenty-four thousand pages of text, fifteen thousand illustrations, hundreds of maps—all in 24 compact volumes. Five hundred books would not give as much, and they would cost you many times more.

Here is all the knowledge of all the world—the most complete, authentic and up-to-date summary of all man's achievements anywhere in existence.

Better still, this is knowledge you can rely upon, because it is *written throughout by authorities*—by 3,500 experts from fifty countries.

Fascinating—Practical

THIS "new model" encyclopaedia brings you illustrations on an unprecedented scale—15,000 of them. Gorgeous color plates, superb half-tones, skilful line drawings enable you to see as well as read.

Merely to browse in this *new* Britannica is an adventure. But you can consult it for profit too. "It has more practical value than had any preceding work intended to present a summary of human learning," says the president of Northwestern University, Dr. Walter Dill Scott.

For All The Family

MEN *eager to get ahead* find it a real aid to greater earning power. *Women* use it as a guide in all the activities of the home and in their outside interests. *Children* revel in it.

Your children especially will benefit by this "new model" encyclopaedia. It will make their school work easier, more interesting and more profitable. *It is the one book they will never outgrow.*

New Low Price $5 Down

AND it is not expensive. This *new* Britannica represents a triumph in lower encyclopaedia prices. You can buy it today at a new low price—a price lower, in fact, than that of any completely *new* Britannica in 60 years.

Under our time-payment plan, an initial investment of only $5 brings the full 24 volumes with bookcase table to your home.

56-PAGE FREE BOOKLET

Act now! Send for our free illustrated booklet. It contains numerous specimen maps, color plates, etc., and gives full information. Just fill out the coupon and mail today.

SEND FOR FREE BOOKLET TODAY

3 N.G.-B2

ENCYCLOPAEDIA BRITANNICA, Inc.
342 Madison Ave., New York City

Without obligation, **please send me by return mail, your 56-page illustrated booklet with color plates and maps from the *new* Britannica, together with low price offer, etc.**

*Name*________________________________

*Address*______________________________

*City*________________ *State*__________

Bunte
Bunte
DIANA CONFECTIONS
BUNTE BROTHERS
CHICAGO U.S.A.
NET WGT 1¼ LB.

FOR all holiday festivities, week end or smart society affairs—what could be more appropriate. An enthusiastic welcome always marks the serving of these crispy, tender, sugary-shells, Diana Confections "Stuft" with meltingly delicious fruit jams, nuts, jellies and marmalades. Originated by Bunte Brothers . . . sold in 1¼ pound, airtight glass jars . . . or in 2, 3 and 5 pound House Party tins, 21 delightful varieties, 200 individual pieces to each 1¼ pound. If your dealer does not have the genuine, a 1¼ pound jar of these toothsome dainties will be sent prepaid on receipt of 75c. Simply address

BUNTE BROTHERS, Est. 1876
3375 Franklin Blvd., Chicago
By the Makers of Mi Choice Chocolates

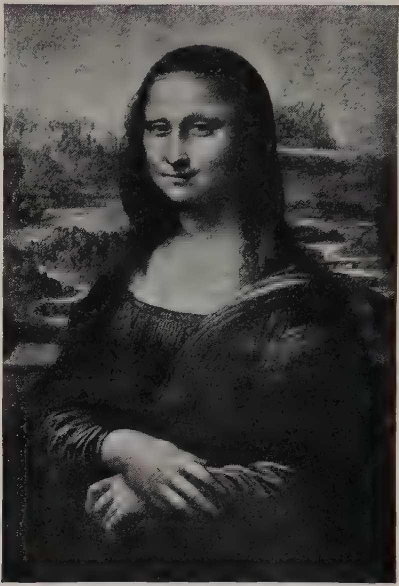
Bunte
DIANA
"Stuft" CONFECTIONS

A NEW ARTISTIC MOVEMENT

ONE evening a group was discussing the new interest in art. Magnificent art museums have gone up and millions have visited them. But these are a relatively small number and there are other millions who can't go because of the time and money needed. These museums are in the larger cities, out of reach of those in the towns.

It was the opinion that, in spite of museums, we do not have the opportunity for the expression of our artistic desires that we deserve. To see the best involves an expensive trip throughout the United States and Europe, for the majority of the world's art treasures still remain abroad.

Then one of the men said, "Let us form an association and give these millions of art-hungry people art where they want it—in their homes, not hundreds of miles away; in Europe or in some private collection. Let this association publish selected works of art from America and Europe, help people to choose the best, and distribute them at the lowest possible cost." Everyone thought the idea good—the result was the


MONA LISA. *By Leonardo da Vinci*

PICTURE A MONTH CLUB

The Club Sees You Get Pictures You've Wanted. How They Are Chosen

No longer will you miss them because you are busy. No longer need you go without because of high prices or because there is no store near you.

Each month the Club chooses a beautiful and important picture. It selects from masterpieces by Titian, Reynolds, Rembrandt, Rubens, Raphael, da Vinci, Velasquez, Van Dyck, and hundreds of others.

The Club considers pictures from the most important galleries in New York, Chicago, Paris, London, Madrid, Berlin, and other cities. A picture chosen from the best of such great paintings is likely to be the one you will want.

Selection Allowed. Choice Not Forced. Hand Printed

The Club realizes that any picture, however good, will not be liked by all. Their choice is not forced on you. Each month the Club recommends three pictures by other artists and you may select any of these—a variety of subjects satisfies all tastes. Reproductions are sent in advance so that you may choose which you wish. Or you may exchange the picture without additional cost.

These pictures are etchings or photogravures printed by hand from imported plates. This is more expensive but is the only satisfactory way. The pictures are about 1 x 1½ feet, just right for the average room.

Free Bulletins an Art Education. Service Used by Discriminating People

Membership includes free subscription to the Club's Monthly Bulletin. It tells the history of the pictures, shows other works by the same artists, and gives you interesting, readable stories of their lives.

Cultured people all over the country are adopting this plan. The pictures will add to the culture of your home and the member's portfolio on your table stamps you as being actively interested in this movement to promote the best in art.

Service Costs You Nothing. Free Portfolio

You pay no fees, dues or postage. You pay only the special Club price for the pictures and, because the Club publishes the pictures, this is much less than you would have to pay if you purchased the pictures separately in the stores.

There are still available a few Charter Memberships. Charter Members receive free a maroon Spanish leather finish fabrikoid portfolio of beautiful workmanship stamped with an Italian Renaissance design in gold. As a special feature Charter Members' names are stamped on in gold.

Details in Free Illustrated Bulletin

A Three Months' Trial Membership has been arranged. Send now for the free illustrated 32-page Introductory Bulletin outlining the simple details of the plan. The Bulletin shows a few famous paintings from which the Club will choose. Mail the coupon for the FREE Bulletin now while Charter Memberships are still open.

The Picture a Month Club
Members' Portfolio

THE PICTURE A MONTH CLUB, Inc.,
2016 Walnut Street,
Philadelphia, Pa.

Yes, I am interested in The Picture a Month Club. Please send me by mail your illustrated 32-page Bulletin giving complete details. It is understood that this is free and that there is no obligation. N.G.11-30

Mr.
Mrs. ....
Miss *Please write plainly or print.*

Address ....

"HOW FAR THIS LITTLE CANDLE THROWS HIS BEAMS"

By night, a tower of strength in the darkness, from whose summit there sweeps tirelessly back and forth across the waters of the Great Lakes, a steady beam of guiding light, unquenched by wind or weather . . . By day, a tower of beauty, a memorial to William Livingston, President of the Lake Carriers Association. Of white Georgia Marble of proven durability and strength, the Livingston Lighthouse rises to its stately height, as impervious to storm as the light it bears, as permanent and beautiful as the Lakes themselves.

THE GEORGIA MARBLE COMPANY
TATE, GEORGIA

Livingston Memorial Lighthouse, Detroit, Michigan

Albert Kahn, Inc., Architect

Gesu Maroti, Sculptor

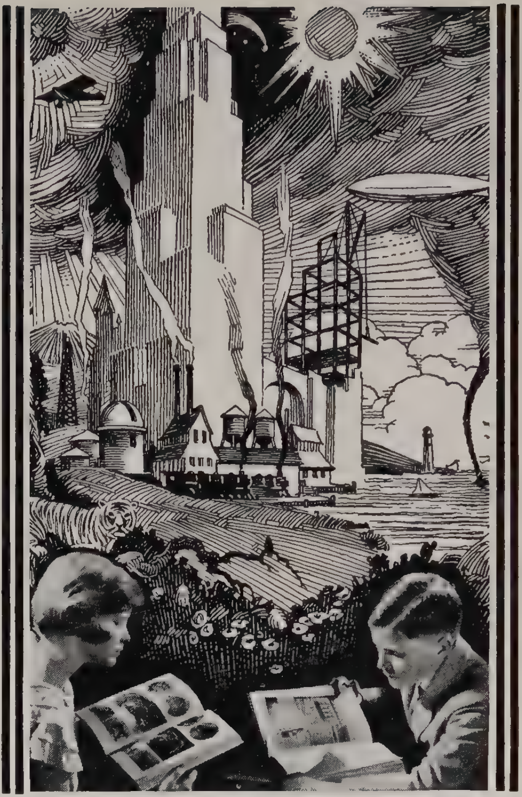
GEORGIA MARBLE

Your Children NEED

The Book of Knowledge

The Children's Encyclopedia

Every teacher knows the marked difference between the child who reads for information and the one who does not. That difference continues all through life. The Book of Knowledge makes reading children, observant children, children who succeed easily in what they attempt.



THE great departments of The Book of Knowledge tell the child or youth what is most worth knowing and they are fascinatingly illustrated by nearly everything worth seeing. The Book of Knowledge forms a marvelously handy little library of nature, science, history, biography, art, literature and manual activities. It is a delightful source of reading, entertainment, instruction and reference during the entire period of school life.

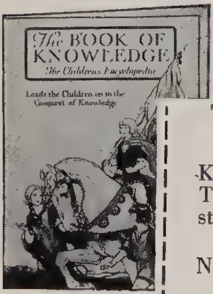
Now in the Homes of Almost 3,000,000 Children

The Book of Knowledge is in the hands of close upon three million children today, and has been printed in six different languages. It is never off the press. It has become the children's friend and helper in all the major activities of their daily lives, and their most important help in getting an education that will satisfy the demands of the challenging life of today.

Pictures are the most effective means of conveying quickly a fact, an idea, a process, a story. The Book of Knowledge shows 15,000 striking educational pictures, 3,400 in beautiful color and gravure. Here is visual education in its simplest, finest form.

Makes Reading Children

The arrangement of The Book of Knowledge is one of its most successful features. It is based on the natural working of the mind of a child—from the Known to the Unknown—from the simple to the more complex—and *never too much or too heavy mental food at one time.* The articles are of exactly the right length to hold and not weary the attention.


The BOOK OF KNOWLEDGE
The Children's Encyclopedia
Leads the Children on to the Conquest of Knowledge

FREE—this beautiful illustrated booklet

THE GROLIER SOCIETY, 2 West 45th Street, New York, N. Y.

You may send me, free, for my children, the beautiful booklet, "The Conquest of Knowledge," containing color plate, gravure pictures of art and architecture, pages on The Earth and Its Neighbors, the Great Wall of China, Why Do I Dream?, poems, a story, games, etc., from the wonderful new edition of The Book of Knowledge.

Name...

Address...

National Geographic, 11-30

NOW...moist air [HUMIDITY]

for every radiator-heated home..!

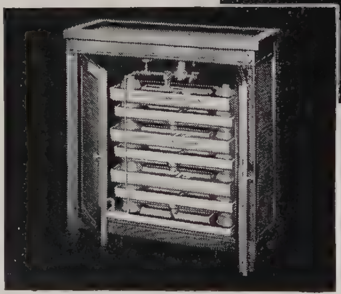
AS LOW AS
$150
F. O. B. FACTORY
Installation Extra

Easy payments if desired!

Ingenious invention banishes dry winter air » » » » the cause of discomfort, colds, and cracked furniture!

$150 to $225, f. o. b. factory, installation extra, in beautiful metal cabinet. Other models in period wood cabinets. Supplied also for recessing in walls. There's a type and size for every radiator-heated home.

AT LAST engineers have overcome winter dryness in the home. The Doherty-Brehm Radiator Humidifier, the first and only successful low-priced humidifier, supplies the correct amount of moisture to the air in any home equipped with radiator heat—steam, hot water, or vapor.



Essential for health and comfort

Into America's finest homes it is bringing the breath of spring all through the winter. Fresh, moist air in every room; no dry, hot air to invite colds, bronchitis, and other winter ills; to crack and blemish furniture, floors, and woodwork.

One Humidifier sufficient for average home

To provide this comfortable and healthful atmosphere, the Doherty-Brehm Radiator Humidifier evaporates just the right amount of water—1 to 100 gallons a day! Positive automatic control; no moving parts to get out of order. No noise or steam. *One of these humidifying radiators centrally located will properly moisten the air in an entire house or apartment.*

Beautiful cabinets—Easy installation

Doherty-Brehm Radiator Humidifiers are enclosed in pleasing cabinets in many finishes to harmonize with any interior decoration. Each is both a heating and humidifying unit, simply installed, and maintained without attention.

Easy Payments on the CRANE *Budget Plan*

The Doherty-Brehm Radiator Humidifier is sold by **CRANE** through dependable heating and plumbing contractors everywhere. You can buy it on the Crane Budget Plan and pay ***only 10% down, the rest in small monthly payments.*** Call in the nearby contractor and tell him to equip your home now.

MAIL THIS COUPON FOR FACTS

DOHERTY-BREHM CO.
333 North Michigan Ave., Chicago, Ill.
Please send your instructive booklet about humidity and the Doherty-Brehm Radiator Humidifier.

DOHERTY-BREHM
Humidifier
CRANE CO

I have......rooms in my house.
I have....hot water....vapor
........heat.
Name......................
Address....................

· DOHERTY-BREHM · HUMIDIFIER

Important Announcement

Now—own the World's Most Famous Library in this New Edition of Matchless Beauty

New!
CHARLES · WILLIAM · ELIOT

NEW VOLUME SIZE—15% larger than former editions—attractive—convenient.

NEW ILLUSTRATIONS—valuable aquatone reproductions of world-famous masterpieces.

NEW PAPER—strong—ivory white—made especially for this edition.

NEW BINDINGS—beautiful—imposing—22-karat gold lettering.

NEW TYPE—larger than in previous editions—perfectly spaced and margined.

HERE is an announcement of a price value never before equalled in the history of the Harvard Classics. This world-famous library now comes to you in the form of a beautiful private library set, de luxe in creation, new in every minute detail, *yet at a price offer amazingly low*.

The type face, larger than any used in earlier editions, has been selected for its beauty and readability. The superb paper, made especially for this edition, will preserve its cream-whiteness always, and will form a rich background for the crisp, black type.

The volume size has been increased both in width and height, making a group of books of generous dimensions, charming in appearance, and pleasant and handy to hold and to read.

Books of rare beauty

The illustrations are thoroughly in keeping with the excellence of the other new features. They are reproduced in an aquatone process which gives them a soft clearness not to be found in ordinary book illustration.

And the bindings possess a majestic beauty, and are both imposing and inviting, with their glorious design of simple good taste.

Surely here is a worthy setting for the books which have become a cultural influence impossible to calculate in human terms. It was Dr. Eliot, editor of these famous Harvard Classics, forty years president of Harvard University, who said, "Books are the most constant of friends, the wisest of counsellors and the most patient of teachers. It is a mistake to suppose that a great deal of leisure is necessary. A few minutes a day, devoted to good books, will make all the difference."

Because he believed what he said, Dr. Eliot undertook the colossal labor of editing and arranging the 418 masterpieces which make up this great work—

And today thousands of cultured families, in whose private libraries these fifty volumes have a place of honor, are ready to testify to the value of the Harvard Classics. Thousands more will own and cherish these books in the beautiful new edition.

An unprecedented value

Dr. Eliot said, "Do not publish an expensive edition. Make the price within the reach of the average family." His wishes have been faithfully followed. The most modest family budgets have comfortably absorbed the notably low price of these wonderful books. And now comes the new edition—de luxe in form, beautiful and imposing, *but costing no more than the earlier, less pretentious editions!* Yet if you examined these two sets side by side, the greatly added value possessed by the new edition would be strikingly and conclusively evident.

Find out today full details about our wonderful price offer, by which you may have this great private library at considerably less than the cost per volume of the ordinary popular novel.

Send for this FREE BOOK

You need not decide now. But send immediately for the booklet which gives Dr. Eliot's plan of reading and which tells more in detail about the new edition. It is free, and it comes to you without any obligation.

15 MINUTES A DAY

DR. ELIOT'S FIVE-FOOT SHELF OF BOOKS

(The Harvard Classics)

MAIL THIS COUPON NOW

Since 1875
COLLIER
Good Books

P. F. Collier & Son Dist. Corp.
250 Park Avenue, New York City

By mail, free, send me the booklet that tells all about the new Home Library Edition of Dr. Eliot's Five-Foot Shelf of Books (the Harvard Classics). Also, please advise how I may secure the books by small monthly payments. 8179-H-D

NAME { Mr. Mrs. Miss ....

ADDRESS ....

IN *the short span of three months and a half you can go Round the World on the largest, finest and fastest liner ever to make a World Cruise.*

RAYMOND-WHITCOMB

Round the World Cruise

Sailing January 21, on the S. S. "Columbus"

Of all World Cruises this is the quickest and the most inviting. There are fewer days at sea . . . because the ship is faster. But the number of places visited is notably large and the sight-seeing and shore excursions are exceptionally generous and complete. There are visits to Egypt and India, Ceylon and Java, Straits Settlements, Philippines, Siam, Hong Kong and Peking, Japan in Cherry Blossom Season . . . calls at interesting out-of-the-way ports — as Penang, Malacca, Zamboanga and Macassar . . . optional side trips to stupendous Angkor Wat and lovely but rarely visited Bali.

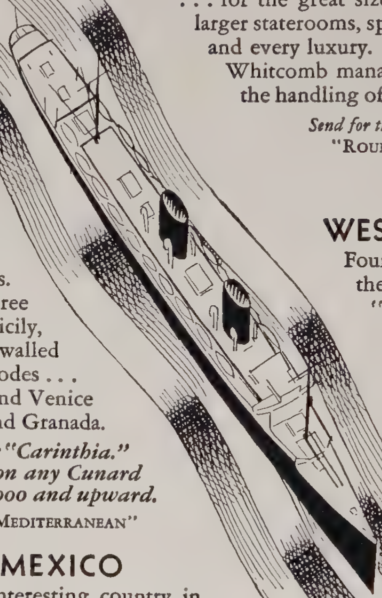
There are more comforts and pleasure in this Cruise . . . for the great size of the *"Columbus"* means larger staterooms, spacious lounges, wider decks and every luxury. And there is the Raymond-Whitcomb management . . . unequalled in the handling of cruises. $2000 and upward.

Send for the Raymond-Whitcomb booklet
"ROUND THE WORLD CRUISE"

WEST INDIES CRUISES

Four Winter Cruises sailing on the new Holland-America liner *"Statendam"*— the finest ship ever to make a cruise to the romantic Caribbean. December 20, January 8, January 27 and Feb. 24.

An airplane cruise to Cuba, Salvador, Guatemala, Honduras, Yucatan (for Chichen Itza Ruins) & Mexico. 14 days.



To visit Nice during its Mardi Gras Carnival

Raymond-Whitcomb

MEDITERRANEAN WINTER CRUISE

The cruise that includes the entire Mediterranean at its best . . . with ideal conditions of comfort . . . comprehensive sight-seeing and excursions. Ten unforgettable days in Egypt . . . three in Palestine. Visits to Taormina in Sicily, Napoleon's birthplace in Corsica . . . walled cities in Jugoslavia . . . Malta and Rhodes . . . Constantinople, Athens . . . Naples and Venice . . . Algiers and Tunis . . . Gibraltar and Granada.

Sailing January 31, on Cunard Liner "Carinthia." Rates, which include return passage on any Cunard steamship sailing during the year, $1000 and upward.

Send for the booklet—"THE COMPLETE MEDITERRANEAN"

LAND CRUISES TO MEXICO

The perfect way to see the most interesting country in North America . . . special trains with bedroom cars and entertainment cars . . . nine days in Mexico City and its vicinity . . . visits to Guanajuato, Querétaro, and other important cities.

Land Cruises to California ∞ South America Tours

RAYMOND & WHITCOMB COMPANY

126 NEWBURY STREET, BOSTON, MASSACHUSETTS

New York, 670 FIFTH AVENUE; *New York*, 225 FIFTH AVENUE; *Boston*, 165 TREMONT ST.; *Philadelphia*, 1601 WALNUT STREET; *Chicago*, 176 NORTH MICHIGAN AVENUE; *Detroit*, 421 BOOK BUILDING; *Los Angeles*, 423 WEST FIFTH STREET; *San Francisco*, 230 POST STREET

Agents in the principal cities

NO. 4 OF A SERIES

THIS series of advertisements is designed to acquaint business men with Grinnell Company as it really is. Automatic Sprinkler protection for which it first won international fame and leadership is not the chief business of the Company. Its equally high reputation for many other industrial piping specialties and commodities has been built on super-standards of manufacture and on original conceptions which are well known to engineers and architects. Business men, too, need to know the real quality in these products.

SUPER POWER PIPING

for instance

MANY large manufacturers are finding that the high steam pressures and temperatures of the super power era have made it possible for them to modernize their power plants at huge savings to themselves.

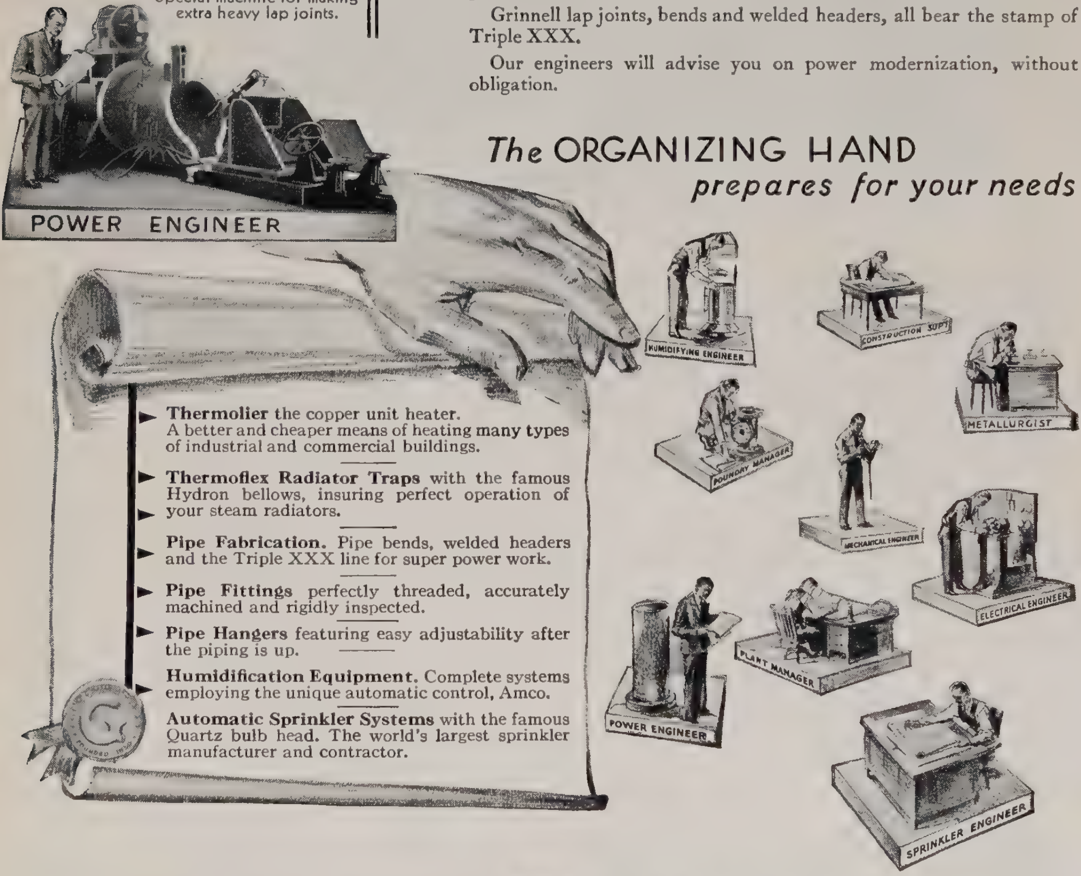
A packing company saves $50,000 a year, for instance. One paper mill will save $220,000 a year. Another $110,000 annually. These savings represent from 25% to 35% on the total cost of modernization.

The transition from low pressure steam to super power has placed a new responsibility on Grinnell Company, one of the country's greatest fabricators of power piping. Processes were evolved, machines were developed, plants were built, men trained, all to fabricate piping to control the increasing power load with new standards of dependability. And, as interpreters of engineering plans for fifty years, we naturally built products with low installation and maintenance costs in mind.

Grinnell lap joints, bends and welded headers, all bear the stamp of Triple XXX.

Our engineers will advise you on power modernization, without obligation.

The ORGANIZING HAND *prepares for your needs*



Special machine for making extra heavy lap joints.

- **Thermolier** the copper unit heater. A better and cheaper means of heating many types of industrial and commercial buildings.
- **Thermoflex Radiator Traps** with the famous Hydron bellows, insuring perfect operation of your steam radiators.
- **Pipe Fabrication.** Pipe bends, welded headers and the Triple XXX line for super power work.
- **Pipe Fittings** perfectly threaded, accurately machined and rigidly inspected.
- **Pipe Hangers** featuring easy adjustability after the piping is up.
- **Humidification Equipment.** Complete systems employing the unique automatic control, Amco.
- **Automatic Sprinkler Systems** with the famous Quartz bulb head. The world's largest sprinkler manufacturer and contractor.

GRINNELL COMPANY

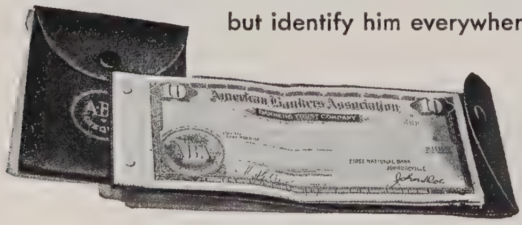
Branches in all Principal Cities

Executive Offices: Providence, R. I.

CANADA
BUY
CO

"A. B. A. CHEQUES? . . . SURE THING, SIR! . . . Wish I had a pocketful . . . You're right, they're lots safer . . . Across the line? . . . Take 'em? . . . I'll say they do . . . O. K. That's 3.90 out of 20 . . . Right . . . Much obliged . . . Have a good time, sir, and stop in on your way back."

Whether it's gas in Bangor, Maine, steamship tickets at Marseilles, plane fare at Le Bourget, or camel hire at Cairo, there's a welcome for the traveler with A. B. A. Cheques. His A. B. A. Cheques are, as it were, a financial passport that not only make his money safe, but identify him everywhere as an experienced traveler.



A·B·A CHEQUES

CERTIFIED

OFFICIAL TRAVEL CHEQUE OF AMERICAN BANKERS ASSOCIATION

San Gabriel Mission. Memento of the Past in Sunny California

Come to California

—where it's always summer time. Bring your golf clubs and swimming suit. Glorious all year sunshine and happy health await you.

LOS ANGELES LIMITED

Only Union Pacific Offers You Such Service

Dining car meals that appeal. The world's smoothest roadbed. Every comfort of de luxe travel. Observation club car, bath, barber, maid, manicure and valet service —no extra fare.

Union Pacific offers the largest fleet of daily trains including, besides the Los Angeles Limited, the famous Overland Limited. Observation and dining cars on all trains.

Frequent and convenient departures from Chicago, Omaha, St. Louis, Kansas City, Minneapolis and St. Paul.

Frequent sailings from Pacific Coast ports to Hawaii and the Orient.

C. J. Collins, Gen'l Pass'r Agt., Dept. 152
Union Pacific System, Omaha, Neb.

Please send me complete information and booklets about

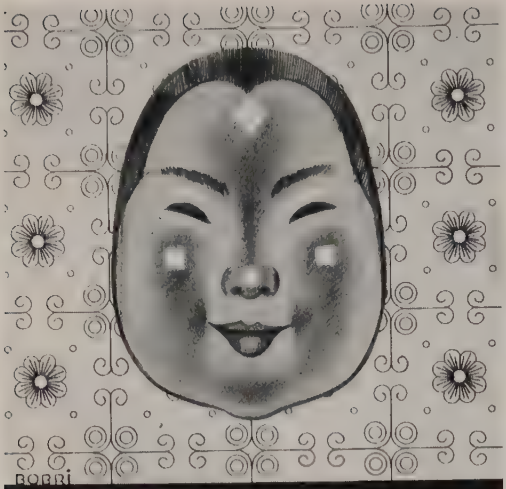
____

Name________________ Street______________

City__________________State______________

THE OVERLAND ROUTE

UNION PACIFIC



AROUND THE WORLD
TWO CRUISES

Two bridges for your dreams to cross . . . Each spans the wonders of the Seven Seas!

EASTWARD in the FRANCONIA . . . a great and proven world-cruise ship . . . the ultimate in gracious luxury . . . the renowned Cunard service . . . a marvelous itinerary . . . to places never before included by a cruising steamer . . . Madras in Southern India . . . Belawan Deli in Sumatra . . . Borneo . . . Bali, primitive Javanese Island, without change of ship or extra cost. Samarang, Saigon, Bangkok, the Philippines are other features. 138 priceless days. Sailing from New York January 10, 1931; returning May 28. $2000 up.

WESTWARD sails the SAMARIA . . . another favourite Cunarder . . . every comfort . . . itinerary includes Bali, without extra expense . . . Samarang, Saigon, Bangkok. A wonderful World Cruise at moderate cost . . . 127 days . . . $1600 up. From New York, Dec. 3; San Diego, Dec. 18; Los Angeles, Dec. 19; San Francisco, Dec. 21 . . . returns April 10.

Behind the success of both Cruises stand the combined knowledge and 179 years' experience of Cunard and Cook's.

Literature and full information from your local agent or

CUNARD LINE
THOS. COOK & SON

Leica

The perfect camera for perfect pictures

An Instrument of Utmost Precision

COMPACT

LIGHTWEIGHT

FITS VEST POCKET

MADE by European craftsmen, the Leica is a marvel of mechanical and optical perfection. Equipped with the famous Elmar Anastigmat F 3.5—the finest lens modern science can produce—and a focal plane shutter permitting speeds of 1/20 to 1/500 of a second. Yet the Leica is small. Fits the vest pocket or purse and weighs less than a pound! Takes 36 pictures on a single roll of cinema film, double frame size—and negatives may be enlarged to 12x18 inches or more!

Handle this unique camera. Test its ease of operation for yourself. Learn why scientists, explorers and professional photographers favor it. Ask your photographic supply dealer to demonstrate it.

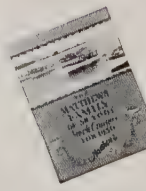
E. LEITZ, Inc., Dept. 11G, 60 East 10th Street
New York, N. Y.

FREE—Pamphlet 1175, fully describing the Leica. Write for it now.

Husky Performance

Stamps Every MATTHEWS *With the Imprint of Owner Safety*

Matthews 38
MATTHEWS 46



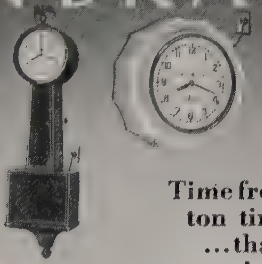
Send me the details on Matthews Cruisers today.

MATTHEWS Cruisers are designed and built to withstand the day-in, day-out grind of long-distance cruising. They are extremely staunch, rugged, beautifully appointed, with a world of room aboardship. Their spirited grace and buoyant riding action is a revelation in fine cruiser performance. They can be navigated and controlled by a novice . . . are dry, safe, responsive and fast. Seasoned by 39 years of boat-building experience, Matthews Cruisers meet every need for huskiness in a fine boat, coupled with rare good looks and unexcelled cabin luxuries. Built in 38 and 46 foot sizes with speeds ranging from 15 to 30 miles per hour, you have the liberal choice of ten trim models to match every cruising and commuting need afloat. Learn for yourself how competently a Matthews will answer every cruising emergency—fit your own ideals of desirability and privacy. Write for detailed information or consult your nearest Matthews dealer today.

THE MATTHEWS COMPANY
300 Bay Side Port Clinton, Ohio

Announcing the GENERAL ELECTRIC CLOCK

regulated by comparison with NAVAL OBSERVATORY RADIO TIME SIGNALS



Time from the stars... Arlington time, reported by radio ...that is what General Electric offers you with General Electric Clock, for home or business.

Attach its cord at any ordinary electric outlet. It is *right* because the impulses of alternating current from your power station are kept constant.

The General Electric Clock has no springs to wind, no escapement to oil or repair, no pendulum to require a level clock base. You can place it anywhere and depend on it for time that's exact.

Its heart is the marvelous little Telechron motor which began more than ten years ago to revolutionize time keeping. Today this tiny motor, at its highest point of development, serves you in General Electric Clocks.

You get the same accuracy from *all* General Electric Clocks. We'll gladly tell you about them. Just send us the coupon.

A Variety of Models

Some with chimes—a choice for any room in the house—tiny bedside timepieces with softly lighted faces to stately grandfather clocks. Every General Electric Clock is powered with the famous Telechron Motor.

$9.75 to $375.

GENERAL ELECTRIC

CLOCK

Merchandise Department • General Electric Company • Bridgeport, Connecticut

Section T-11411, Merchandise Department
General Electric Company
Bridgeport, Conn.

Please send me the booklet "Time-O'-Day by General Electric" that tells about General Electric Clocks.

Name____________________

Address____________________

Around the World Your Own Way!

Easily possible now are these please-yourself Cruise-Tours. The co-operation of Cunard and N. Y. K. Line (Japan Mail) links two of the world's foremost steamship companies in a globe-encircling chain . . . offering unlimited flexibility in Independent World Travel.

Travel memories are a priceless possession that nothing can take away! . . . gather them from far and wide . . . amid the exquisite beauty of Japan, when cherry blossoms weep above mirror-pools . . . and the Miyako Odori is performed in old Kyoto . . . treasure-hunt in banner-hung Eastern bazaars . . . Shanghai's quaint Pig Alley . . . Bangkok's Silver Street . . . yield to the lure of languorous coral-set isles . . . Ceylon . . . Java . . . incredible Bali.

All this, and much more, through many lands in a mood of care-free leisure . . . stopping where you will . . . resuming your journey when you will . . . unfettered by timetables and sailing dates.

Fare as low as $993.

Literature on Request to Your Local Agent or Tour Department

CUNARD LINE
25 Broadway, New York

N. Y. K. LINE
(JAPAN MAIL)
10 Bridge St., or 545 Fifth Ave., New York

It may strike you as strange

to think of coffee and sleep at the same time. But you can now drink one of the world's finest coffees—any time, day or night—without disturbing your sleep or nerves.

It is Kellogg's Kaffee Hag Coffee—free from all caffeine effect. Made for the millions of coffee lovers who are denied their favorite drink because of the caffeine. You can drink all the Kaffee Hag Coffee you want—with never a worry about loss of sleep or ragged nerves.

And what wonderful coffee it is! Made in a magnificent new coffee plant in Battle Creek. Roasted from the finest blends of coffee with the caffeine removed. Sealed fresh in vacuum cans so as to reach you with all its delicious flavor and aroma unharmed. Try it. Note how good it is—and how soundly and pleasantly you'll sleep!

Kellogg's
KAFFEE HAG COFFEE
the coffee that lets you sleep

COFFEE
KAFFEE
HAG

A RADIO FEATURE

Every Sunday evening over the Blue network, Kellogg's Kaffee Hag Coffee presents to you the popular Slumber Music, a distinctive program of the sweetest music ever written. Tune in and enjoy it—from 11:00 to 11:30 in the East, 10:00 to 10:30 Central time, and 9:00 to 9:30 Mountain time. Stations—WJZ, WBZA, WBZ, WHAM, KDKA, WJR, WLW, WENR, KWK, WREN. Also KFI, KOMO, from 10:00 to 10:30; and KOA, 10:30 to 11:00.

WHY FAMOUS MEN OF THE DAY USE BARBASOL

"Shaving is an Easy Trick ... with Barbasol"

"Barbasol gives me a perfect performance every day. It's so clean and quick, with brush and rub and lather eliminated, that it makes the daily razor rehearsal a joy instead of a chore. And another thing: I find it leaves my face soft and smooth and refreshed. I want to recommend it heartily."

Joe Cook
JOE COOK

Barbasol
Barbasol an antiseptic beard softener for Shaving
No brush No lather No rub-in
Barbasol Anti-Septic Beard Softener
Barbasol

*** Barbasol testimonials are not paid for.**

DO you hate to get into the daily shaving scrape in the morning? Most men do—but not the boys who tackle their beards with Barbasol. They LIKE it.

Barbasol makes the shave so easy; so smooth; so slick and clean—and it *leaves* your face feeling soft as a baby's. Any Barbasol Believer will tell you he has no hesitation in shaving *twice* a day. It's that comforting to the old face, even when studded with the toughest whiskers this side of Russia.

But—you've got to use Barbasol R-I-G-H-T
to get Barbasol Benefits—Here's How:

1. Wet your face thoroughly. Leave it wet.
2. Spread on Barbasol. Don't rub it in.
3. Wet a good blade and—SHAVE.

If you follow these directions you'll be following the crowd. They've made Barbasol the fastest-selling shaving cream in America.

And don't forget: Barbasol has put the old brush-and-lather chore in the class with hoop-skirts and high bicycles. No more old-fashioned messing around with soap; no rubbing. Barbasol softens the beard quickly while it holds the hairs straight up to the blade. Then—how crisp and clean the whiskers come away. Just try it once and you, too, will become a Barbasol Believer. Generous tubes 35c and 65c at all druggists'. The Barbasol Company, Indianapolis, Ind.

JOE COOK, actor, musician, acrobat, screen star, and comedian extraordinary, whose imitation of four Hawaiians is a perennial promise to a fun-loving American public. He's turning in a laugh a minute in "Rain or Shine," his great circus picture, these days.

Barbasol
Skin Freshener

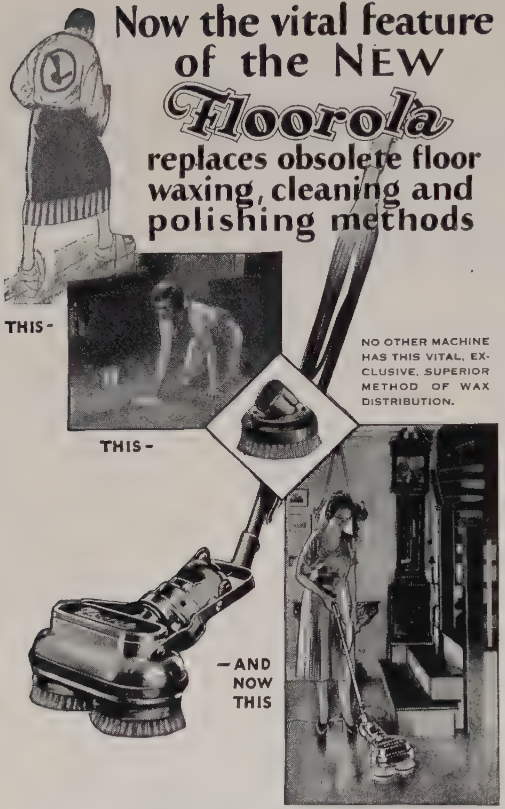
BARBASOL
SKIN FRESHENER

It's a new kind of "bracer," morning, noon or night. Slap it on face and neck for a quick pick-up. Wonderful; rejuvenating; tingling; what a treat!

Barbasol

For Modern Shaving

No brushing — No lathering — No rubbing


THIS -
THIS -
NO OTHER MACHINE HAS THIS VITAL, EXCLUSIVE, SUPERIOR METHOD OF WAX DISTRIBUTION.
—AND NOW THIS

Now the vital feature of the NEW Floorola replaces obsolete floor waxing, cleaning and polishing methods

Permanent "New Floor" Beauty Now Yours

No mess—no effort.... simply place compact, tidy, sealed wax containers into the hollow distributing brushes....at a touch of the handle trigger switch FLOOROLA-WAX is ***automatically*** applied direct to the floor . . . forced vigorously into thousands of tiny pores.

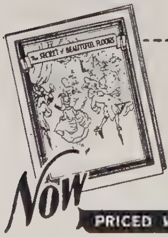
FLOOROLA'S unique method ***automatically*** cleans as it waxes . . . . revealing and *permanently maintaining* the original newness of your floors. FLOOROLA-WAX quickly imparts a crystal-clear surface, hard, brilliant, non-slipping....a surface forever rid of the objectional features of old-style, non-penetrating, surface waxing.

Eliminate costly floor refinishing and maintenance expense. Let the modern economical FLOOROLA method, protect your investment in your home by keeping floors ***always*** clean and beautiful.

We shall gladly send you the name of a nearby dealer and a copy of an intriguing booklet *"The Secret of Beautiful Floors."*

THE FLOOROLA CORPORATION, YORK, PENNSYLVANIA

The NEW Floorola



The Floorola Corporation.
Dept. NG-11 York, Pennsylvania
Gentlemen:
I want to learn more about this revolutionary new Floorola process—send me your interesting booklet, "The Secret of Beautiful Floors."
Name
Address
City State
☐ Send name of nearest dealer.

Now

PRICED WITHIN THE REACH of EVERY HOME OWNER

Let us send you our new

"FINANCIAL INDEPENDENCE BLANK"

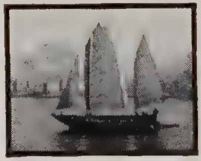
NO two people can use exactly the same investment formula. That's why we believe that a personal consultation is the best possible way to help our clients work out a plan that will bring them financial independence.

However, if a personal consultation is not convenient for you, send for one of our new free "Financial Independence Blanks."

You can fill in this blank easily and quickly, and it will give us the information we need to advise you by mail. Send for your blank today. It places you under no obligation whatsoever. At the same time we shall be glad to send you a copy of our interesting booklet, "The Road to Wealth."

S. W. STRAUS & CO.
ESTABLISHED 1882 *INCORPORATED*
INVESTMENT SECURITIES
Dept. N-116 565 Fifth Ave., N. Y. C. PLAza 4200

TRAVEL PHOTOGRAPHY MODERNIZED



Memo picture size

Why be content with a few meagre snapshots on your travels? Using the Memo Camera you can make a 500-picture record—complete, intimate, gossipy—with $5 worth of film. Gets everything instantly, easily; no bother. 50 pictures without changing film. Spyglass finder; take them as you see them. A twick of your thumb and the film is advanced for another shot. A pocket camera, only 2 x 2½ x 4 inches. Gives thumbnail prints for illustrating letters . . . enlargements for the album . . and complete personal newsreels, with titles to show on the screen. The Memo does a big job with handy-size pictures. Hundreds of uses beyond the scope of other cameras. Photography condensed for busy executives, travelers, sportsmen, motorists, parents, etc.

Memo Camera only $20

AGFA ANSCO OF BINGHAMTON, N. Y.
Please send me free 56-page Memo handbook
Name
Address

Six Months Old Today!

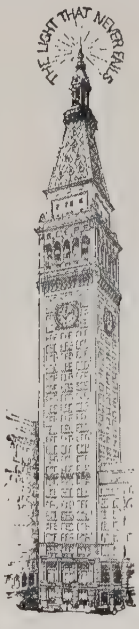
© 1930
M.L.I.Co.

Tomorrow he is going to keep an appointment with his doctor made the day the baby was born.

YOUNG mothers of this generation little realize the heartaches and anxieties their grandmothers suffered in rearing their children. Forty years ago diphtheria killed six times as many babies as it does today. People were helpless when diphtheria epidemics raged. Then there was neither anti-toxin to help fight the disease, nor toxin-antitoxin (or toxoid) to prevent it.

Nowadays, the disease has almost disappeared in communities where people have organized campaigns to educate and persuade every mother to have her baby inoculated against diphtheria at the age of six months. Nevertheless, throughout the length and breadth of the country, about 8,000 children died last year from this one cause. They had not been protected as they might have been.

Immunization is a very simple matter — painless and safe. But the inoculation of your baby should not be delayed.


THE LIGHT THAT NEVER FAILS

More than half of all deaths from diphtheria occur among children between the ages of six months and five years. A striking contrast is presented by comparison of the deathrates from diphtheria in two groups of representative American cities. For the past three years the first group has carried on an intensive campaign to immunize all children against diphtheria and has *decreased* its deathrate 33%. During the same period the second group of cities has been less aggressive and has had an *increase* of 9%.

Protection can be given your baby whether or not you live in a city or a part of the country which has a dangerous diphtheria deathrate. Take him to your doctor and you will be spared one anxiety from which past generations were never free.

Metropolitan Life Insurance Company will gladly mail free, its booklet, "Diphtheria is Preventable". Address Booklet Department 1130-N.

METROPOLITAN LIFE INSURANCE COMPANY

FREDERICK H. ECKER, PRESIDENT
ONE MADISON AVE., NEW YORK, N. Y.

WORLD
LEADERSHIP

We have frankly aimed to make an assortment of chocolates un-matched in America. We really believe that who leads America in fine chocolates leads the world. We invite your critical testing and tasting of

Whitman's

Prestige Chocolates. In one-pound, two-pound and three-pound sizes —$2 a pound.

PRESTIGE
CHOCOLATES

Prestige

©S.F.W.&Son,Inc.

VOL. LVIII, No. 5 WASHINGTON NOVEMBER, 1930

THE NATIONAL GEOGRAPHIC MAGAZINE

COPYRIGHT, 1930, BY NATIONAL GEOGRAPHIC SOCIETY, WASHINGTON, D. C., IN THE UNITED STATES AND GREAT BRITAIN

THIS GIANT THAT IS NEW YORK

BY FREDERICK SIMPICH

AUTHOR OF "SO BIG TEXAS," "THE SANTA FE TRAIL, PATH TO EMPIRE," "MANCHURIA, PROMISED LAND OF ASIA," ETC., ETC., IN THE NATIONAL GEOGRAPHIC MAGAZINE

With Natural-Color Illustrations by Clifton Adams and Edwin L. Wisherd, Staff Photographers

NEW YORK! Man's incomparable feat! As incredible, almost, as that ants should have built the Andes! Colossal monument to that genius which creates new things faster than simple words can be found to define them!

Venice laughed at Marco Polo when he came back and told of China. It couldn't believe in a land with paper money and black stones that burned.

Could Marco revive now and see New York, he could hardly describe a single thing. He would lack name-words. So would Henry Hudson, Peter Stuyvesant, Lord Howe—even Fulton or General Grant.

With what words in use even at the end of our Civil War could you define radio, rivet guns, automats, escalators, electric power and light, pneumatic mail tubes, elevators that shoot up 700 feet a minute, subways, compressed-air drills, dictophones, teletype and adding machines, vacuum cleaners, gas ice-makers, or even a motor truck?

Their names we moderns know, and that they work, though few can say *how*. Yet with them and other new machines man builds and runs his cities.

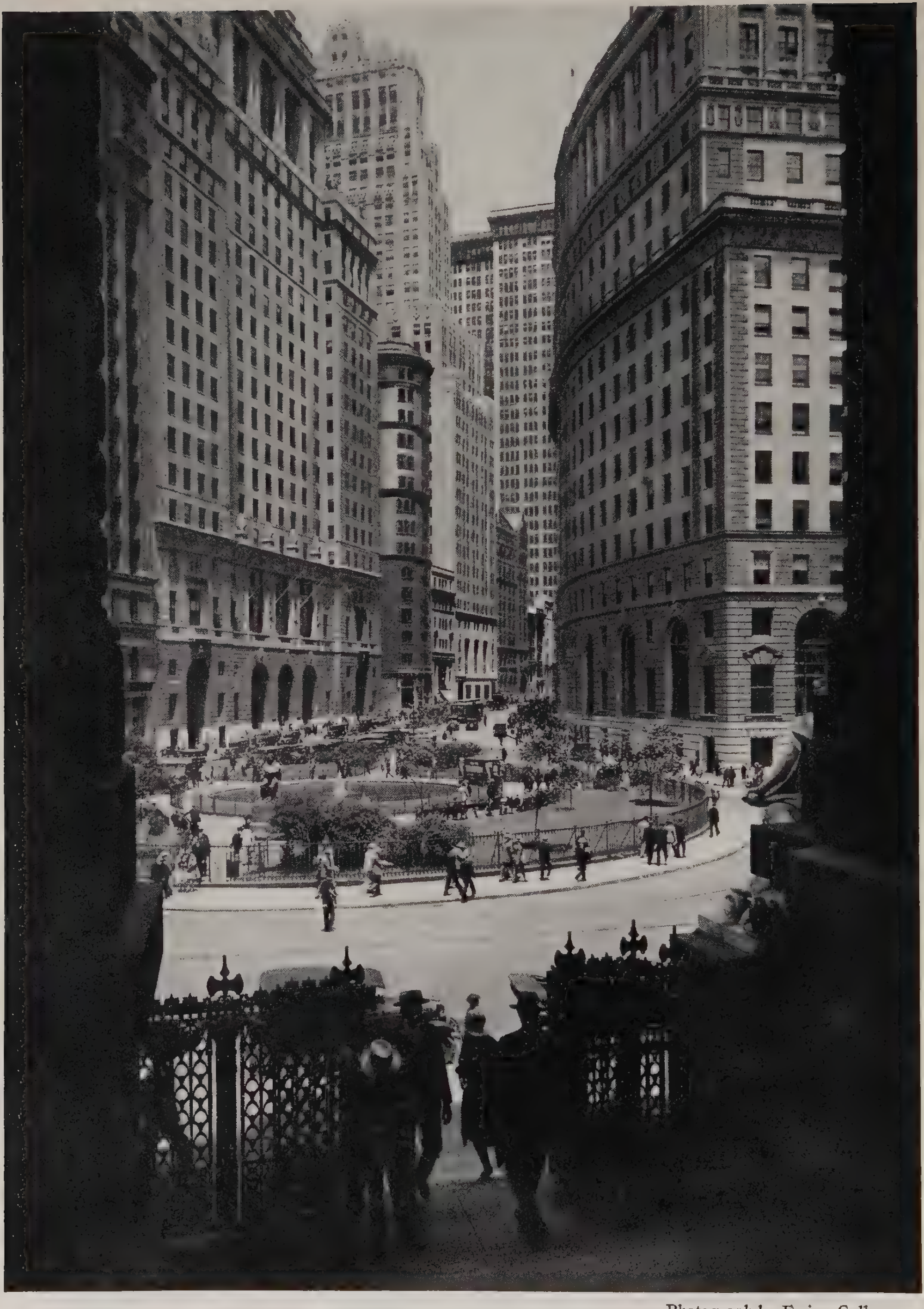
With them he achieved New York, the very acme of human effort. Power and light are its symbols and skyscrapers its phenomena. By day they make its magic and they turn its nights into cosmic melodrama.

Go up on any high hotel roof after sunset and watch the city come to life. By electric moons, rainbows, and fixed comets you see Manhattan blaze from dusk into gorgeous theatrical illumination. Flood lights paint its pinnacles, as when sun first flashed on earth's virgin peaks and the music of the spheres began.

Out of crepuscular space its twinkling skyline ebbs and flows in tides of tempo and color. As each edifice melts into new lights and shadows, all the architectural phantasmagoria of the ages, linked even with earth's ancient scars, seems to unfold. In fancy you see a phantom city, a kaleidoscopic riot of Alps and Acropolis; Ming Tombs, Taj Mahal, and Pyramids; Gibraltar, Panama Canal, Tower of Babel, with Grand Canyon and Yangtze Gorges formed by street caverns far below; Cologne Cathedral, Pikes Peak, and St. Peter's; a Chinese Wall against a Sahara Desert of lamp-lit sky; towers and turrets, mosques, minarets, domes, steeples, roof tanks, and penthouses all heaped and crowding and seeming to burn as smoke moves in electric light.

Next day, from the same high place, see it again—realistic, noisy, its streets crowded with traffic.

As Rome rests upon her hills, so New York covers its many islands. But it never rests. Higher and ever higher rise the skyscrapers. Their mastodontic bulk; their



Photograph by Ewing Galloway

SO THIS IS NEW YORK!

From the steps of the Customhouse one looks north over Bowling Green and into the mouth of Broadway's roaring canyon, where New York begins. In 1929 this Customhouse collected some $350,000,000 in duties. The water front of Greater New York, including Manhattan, the Bronx, Brooklyn, Queens, Richmond, and the New Jersey side, totals 771 miles.

grace of geometric design; their dizzy height and fearsome beauty—at first they almost hint that man's monsters have run away with him. Stare up at such a building and it fairly dominates one's mind and body.

I talked with a man who had just built a "cloud tickler." We met in his office, 57 floors above 42d Street.

"Why did you make it so high?"

He spoke of space, crowds, land costs, zone laws, and rents.

"Yet Egypt couldn't have been so crowded," I urged, "when Cheops piled up his Great Pyramid; nor Babylonia when its people raised their tower. . . . But there was Nebuchadnezzar. . . ."

"Of course; pride, too," he admitted, lifting a window shade and gazing out.

CROWDS MAKE CITIES AND CITIES MAKE CROWDS

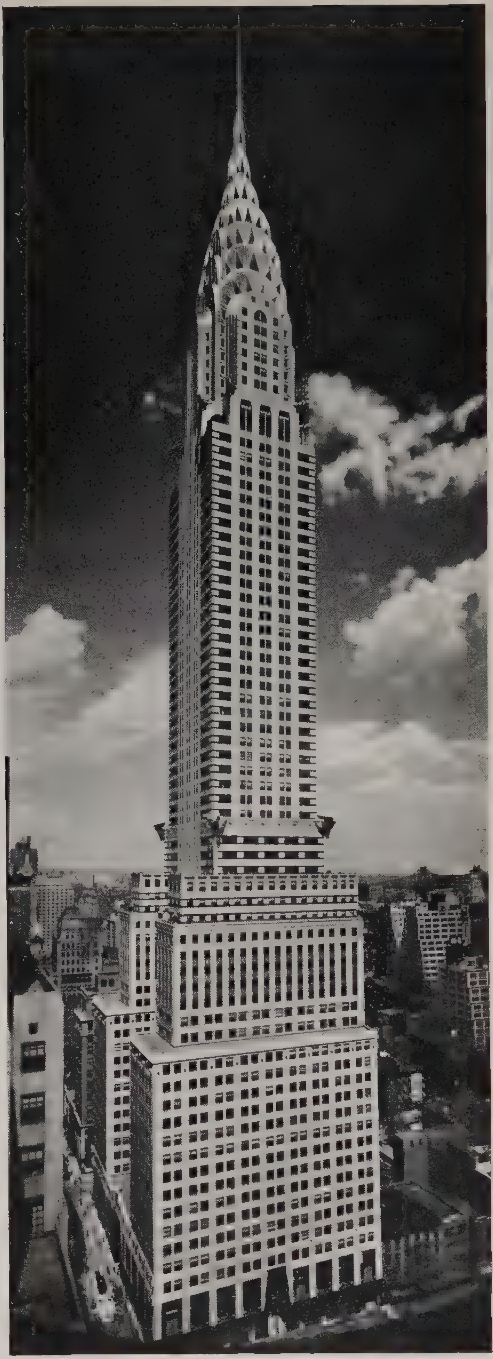
We were so high that bits of fog went floating by. Miles to the east stretched Long Island; to the south was the Statue of Liberty, and Staten Island. And we could see far west, into New Jersey, and to the north, beyond Central Park.

Below lay mere pigmy structures of six and eight stories. Here and there, up from among them, other skyscrapers rose about us, in this swiftly changing region of Mid-Manhattan. Firm, symmetrical they were, with all the pagan dignity of a Lincoln Memorial. In their myriad windows we could see girls pounding typewriters or powdering their noses; but, save for a faint metallic city hum from far below, there was no sound. Here one could think.

These high buildings, that visitors from all over the world stare at with such astonishment, make New York what it is—the supreme wonder of the modern world (see Photogravure Plate VII).

When the first "skyscraper," of only 13 stories, went up on Lower Broadway, people feared it. Those in adjacent houses moved out in alarm. Nor was the public quite reassured, even after the builder had gone up into its steel frame during a gale and let down a plumb line to prove there was no dangerous sway.

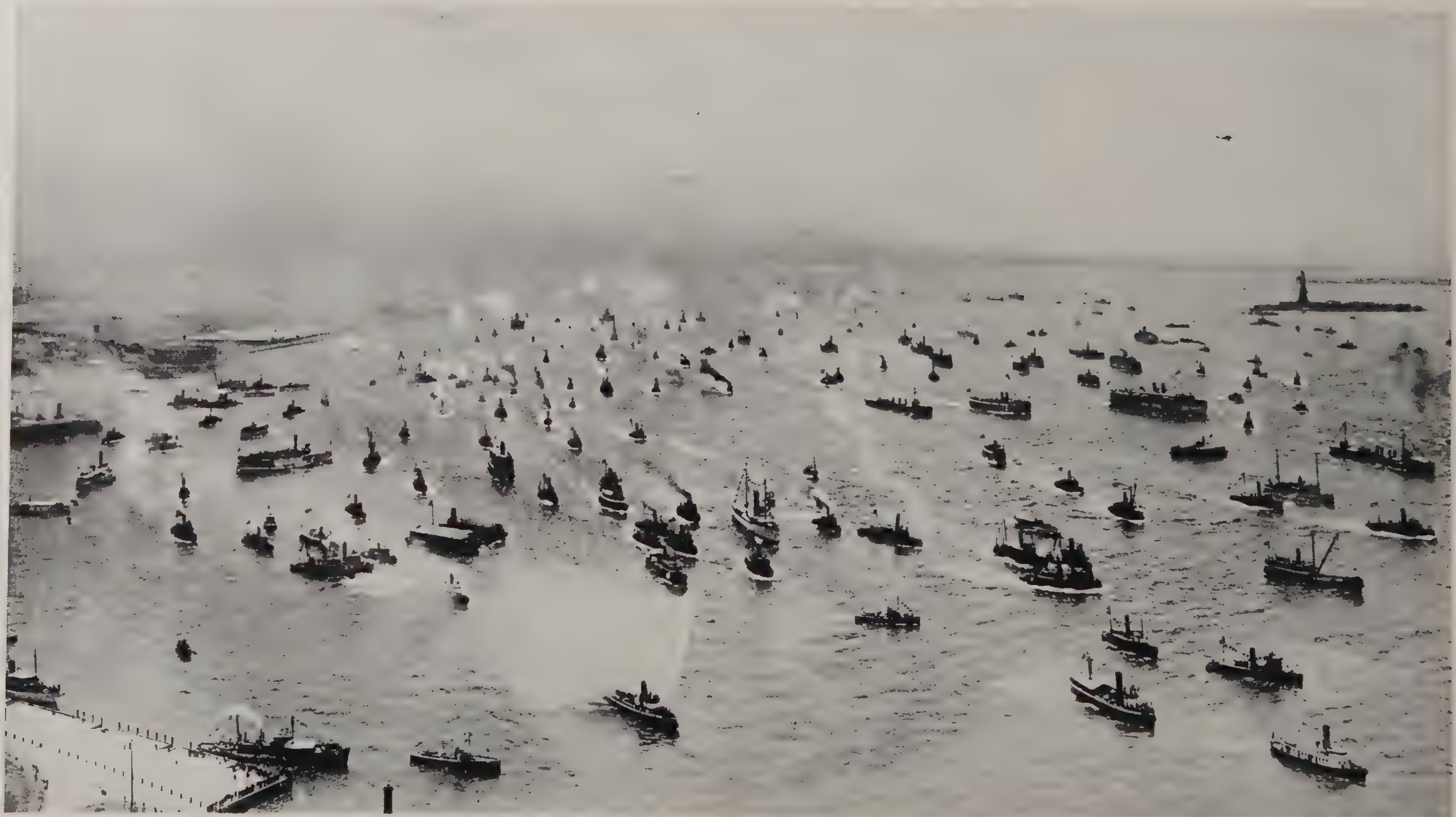
Now, higher and ever higher they go—50, 60, 70, 85 stories. So many there are, and so high, that to-day the *vertical travel in New York actually exceeds the*



© Browning Studios

THE WORLD'S TALLEST

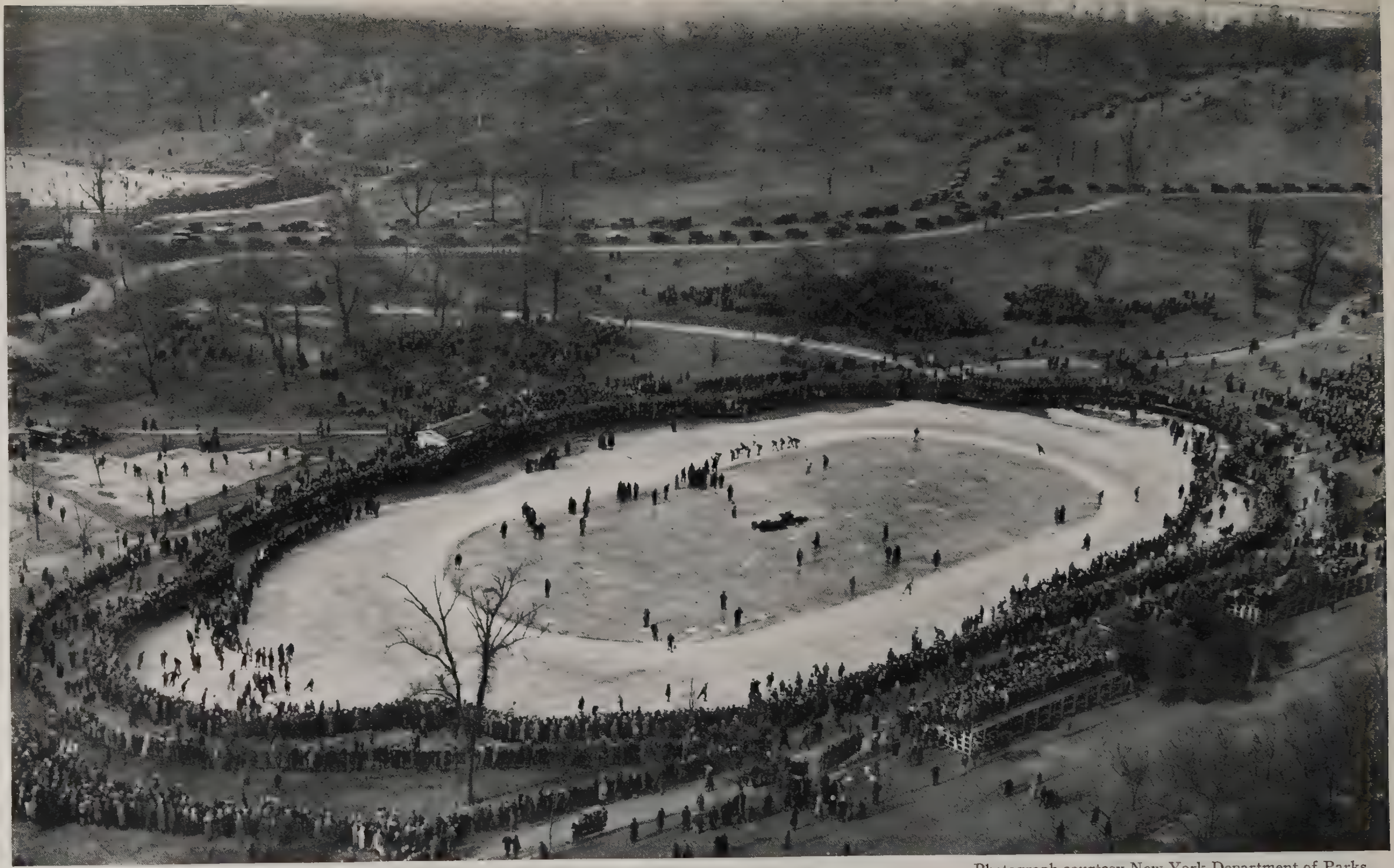
The Chrysler Building, using 32 high-speed elevators, rises 77 stories at Lexington Avenue and 42d Street; but the Empire State Building, now being erected on the site of the former Waldorf-Astoria Hotel, and to be finished in May, 1931, will attain 85 stories.



Photograph by J. Hal Steffen

THUS THE CITY GREETS FAMOUS VISITORS COMING FROM OVERSEAS (SEE, ALSO, PHOTOGRAVURE PLATE IV)

Royalty, statesmen, conquering warriors, transatlantic flyers—New York has welcomed them all. The *Macom,* visible just above the fireboat's shooting streams, is the city's official reception boat. Here, too, at America's busiest seaport, converge the ocean freight and tourist paths from everywhere.



Photograph courtesy New York Department of Parks

THOUSANDS WATCH AN ICE-SKATING CARNIVAL ON THE CONSERVATORY LAKE, IN CENTRAL PARK

Only by eternal vigilance does the city keep this great park clean, green, and beautiful, for the free use of its people. One problem is to save trees and grass from the blight of motor gas; another is to prevent the erection of monuments to prominent citizens.

horizontal. In other words, elevators carry more passengers than do all the surface cars, elevated trains, taxis, buses, and subways combined.

"How far do your 21 elevators run in a day?" I asked the owner of a skyscraper.

"They cover a mileage equal to the run of the Twentieth Century Limited from New York to Chicago," he answered. "One of our big problems in New York is getting the occupants of skyscrapers in and out on time. You see, the larger buildings hold anywhere from 5,000 to 15,000 and even 20,000 workers. In some are found people from practically every State in the Union. If all these tenants had to *walk* downstairs, it might take hours to empty a building; and many, of course, are physically incapable of walking down. Try it yourself. It took one of my staff more than half an hour to walk down from his office on the 57th floor, and the effort made him very ill.

"Even with express elevators, it takes us nearly an hour to empty some of the larger buildings and get the people away from the ground floor and entrances, because of congested subways. If they all came down at once, it would pile people up ten or twelve deep in the streets around the building. The higher these buildings rise, the heavier they are. So, as we build higher, we must use more and more of the ground space for supporting columns, which means more crowding on the lower floors."

"How high will they go?" I ventured.

"Who knows? Based on one city block or less, perhaps we've reached the limit; but we may eventually have skyscrapers based on two, three, or four blocks, with archways over streets. They might reach 150 stories. Who knows?"

A MODERN SKYSCRAPER IS A CITY WITHIN ITSELF

I explored one modern building, the last word in skyscraper art. It is a city in itself, with all a city's problems of traffic, water, heat, lights, sewage, fire and police protection, and cleaning. Its total floor area equals that of many a farm. To run its elevators requires a starter, six assistant starters, 35 operators, and a crew of 10 maintenance men.

Since water from fire hydrants can be squirted upward only about 150 feet, and since firemen cannot drag a hose up 50 or 75 stories, the building has its own upright water mains, tanks, and high-pressure pumps, with an elaborate system of alarms and extinguishing apparatus.

Besides its many other workers, it employs 400 charwomen, 50 porters, and many window-washers.

It stands on Lexington Avenue, in the turbulent Grand Central district. Here, into the Chanin, Chrysler, Graybar, Grand Central Palace, and other buildings, more than 50,000 people crowd to work in an area used till recent years by only a few hundreds. Into this indescribable traffic jam it would now be almost impossible to get loaded coal wagons fast enough to heat these huge structures or to haul away ashes; so for heating many buildings hereabouts steam is piped from a far-away central plant.

Beneath this building are turntables for buses from railway terminals. Tunnels lead from it in many directions. Through them thousands of its tenants arrive each morning after many miles of underground travel, and through them one may wander, as in the streets of a subterranean city. In this human prairie-dog town are more than 50 places to eat, and stores selling everything from office supplies and lingerie to thermos bottles, sunray lamps, cigars, books, and haberdashery. From these commercial catacombs one may ride all the way out to Long Island without ever coming into the open air.

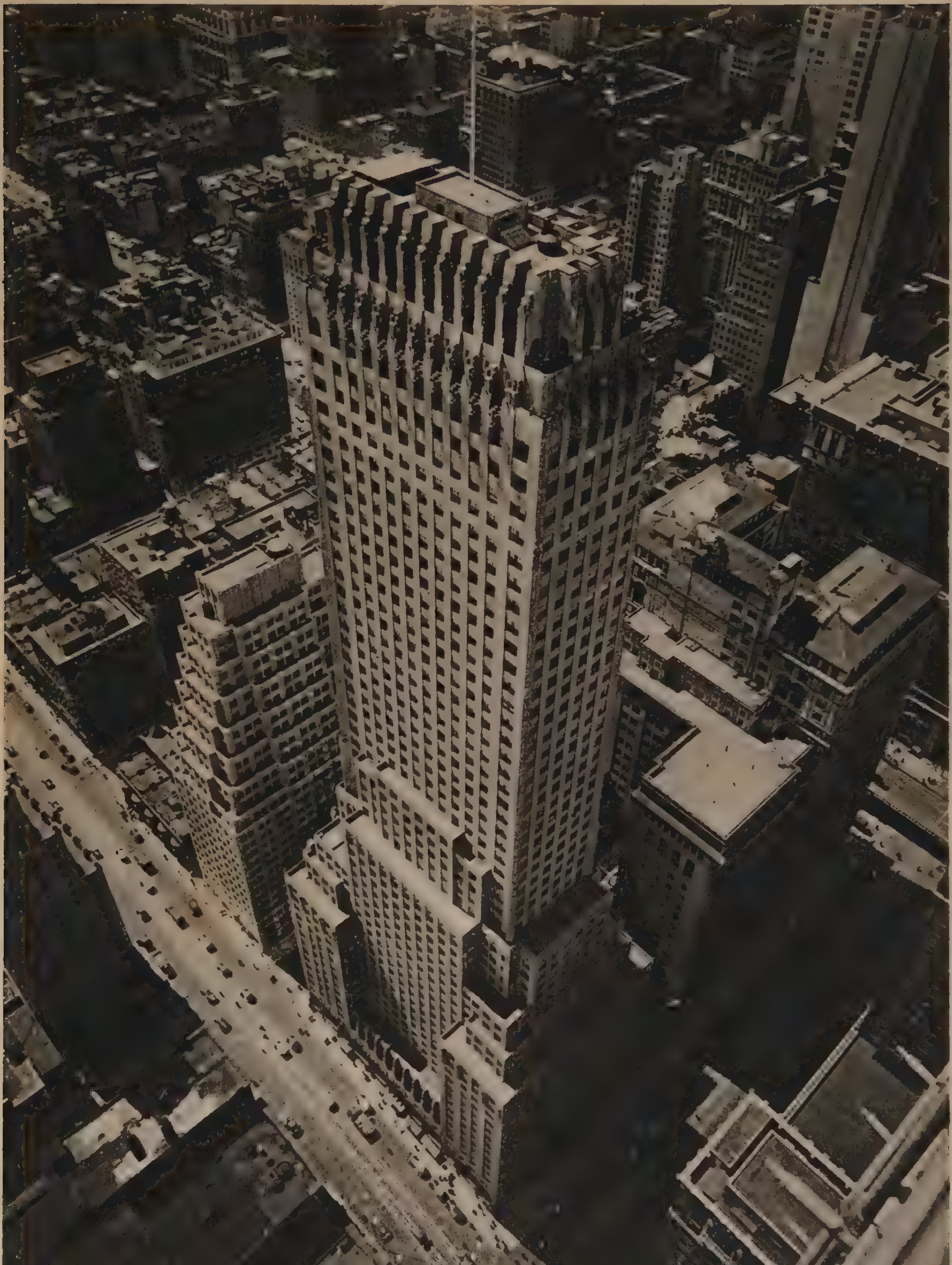
WITH AMAZING SPEED OLD BUILDINGS ARE WRECKED AND NEW ONES RISE

But New York's greatness is not in structure alone. It lies also in the speed at which life moves and new buildings displace the old. This swift transition stuns even the blasé New Yorker.

"That's a fine building there," observed a visitor, riding up Fifth Avenue with his host.

"Take a good look at it," joked the latter. "It may not be there when we come back."

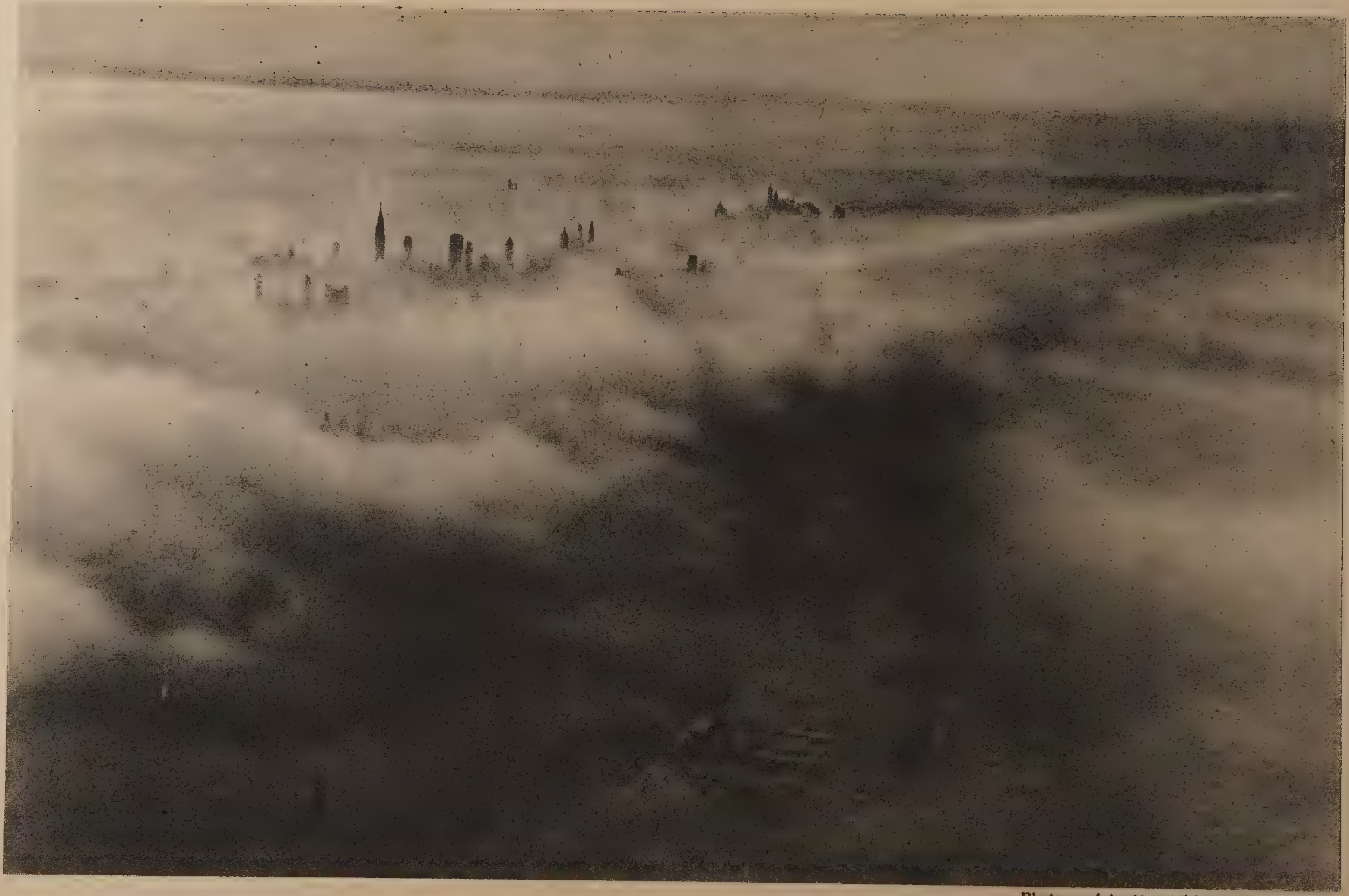
Troy was wrecked and rebuilt nine times. Here history repeats. Compare the skyline now with pictures of the same region made only ten years ago. You will see that palatial homes have been demolished and whole residence districts swept away to clear sites for higher buildings.



Photograph by Ewing Galloway

MAN LIFTS HIS BUSINESS TEMPLES EVER HIGHER

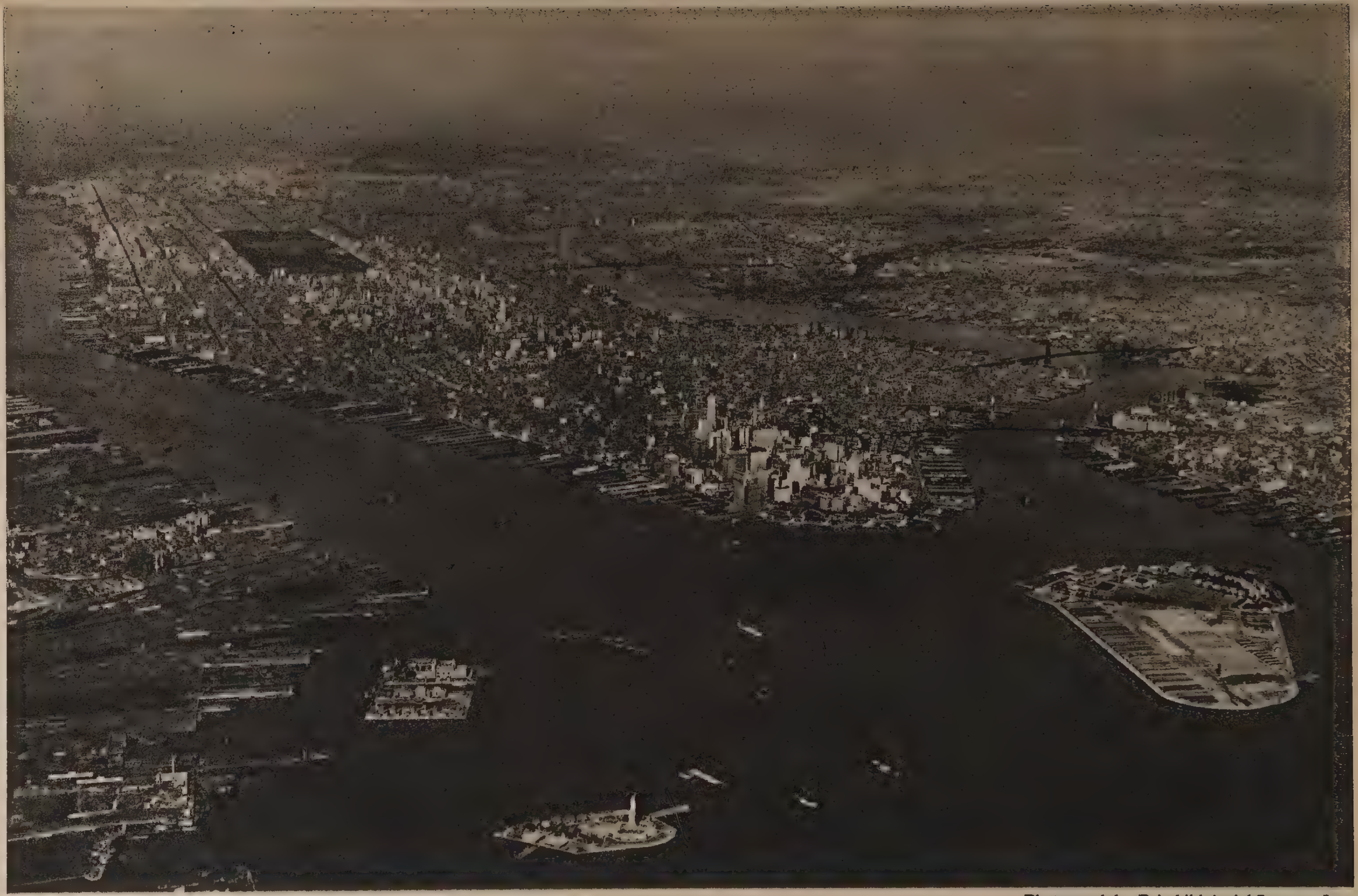
Nebuchadnezzar walked the roof of his new palace in Babylon, and looked haughtily down on more humble homes. Pride, as well as economic needs, raises the skyscrapers. The new Chanin Building, at 42d Street and Lexington Avenue.



Photograph by Fairchild Aerial Surveys, Inc.

AS SKY-RIDERS ON SOME MAGIC CARPET MIGHT SEE NEW YORK

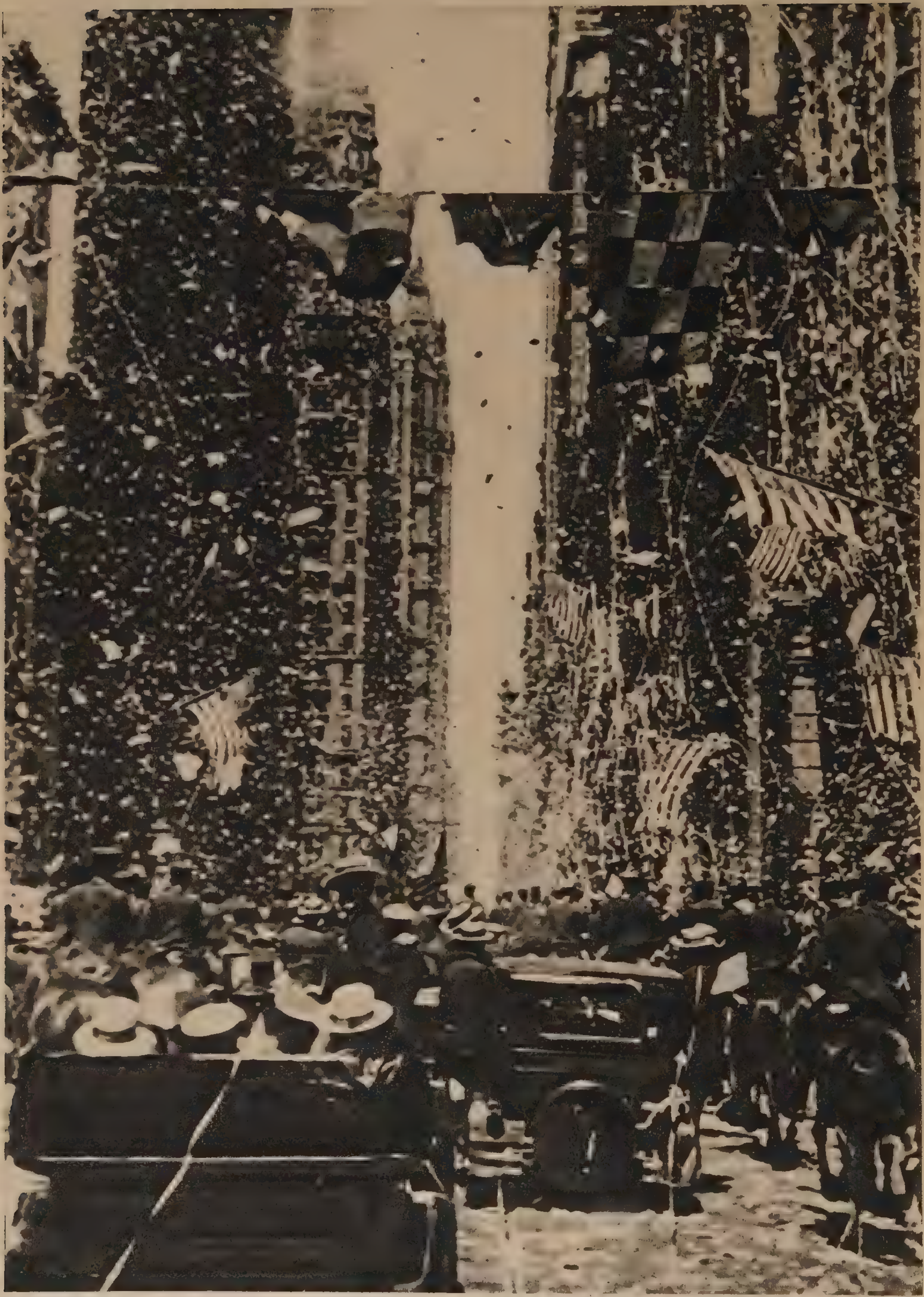
Like a dream city in fairyland, the towers, domes and turrets pierce the fog clouds, forming landmarks to aviators flying above. From upper floors of skyscrapers, occupants may sometimes look down on phantom cloud fragments.



Photograph by Fairchild Aerial Surveys, Inc.

MEN CROWD MANHATTAN AS BIRDS FIGHT FOR STANDING ROOM ON OCEAN ROCKS

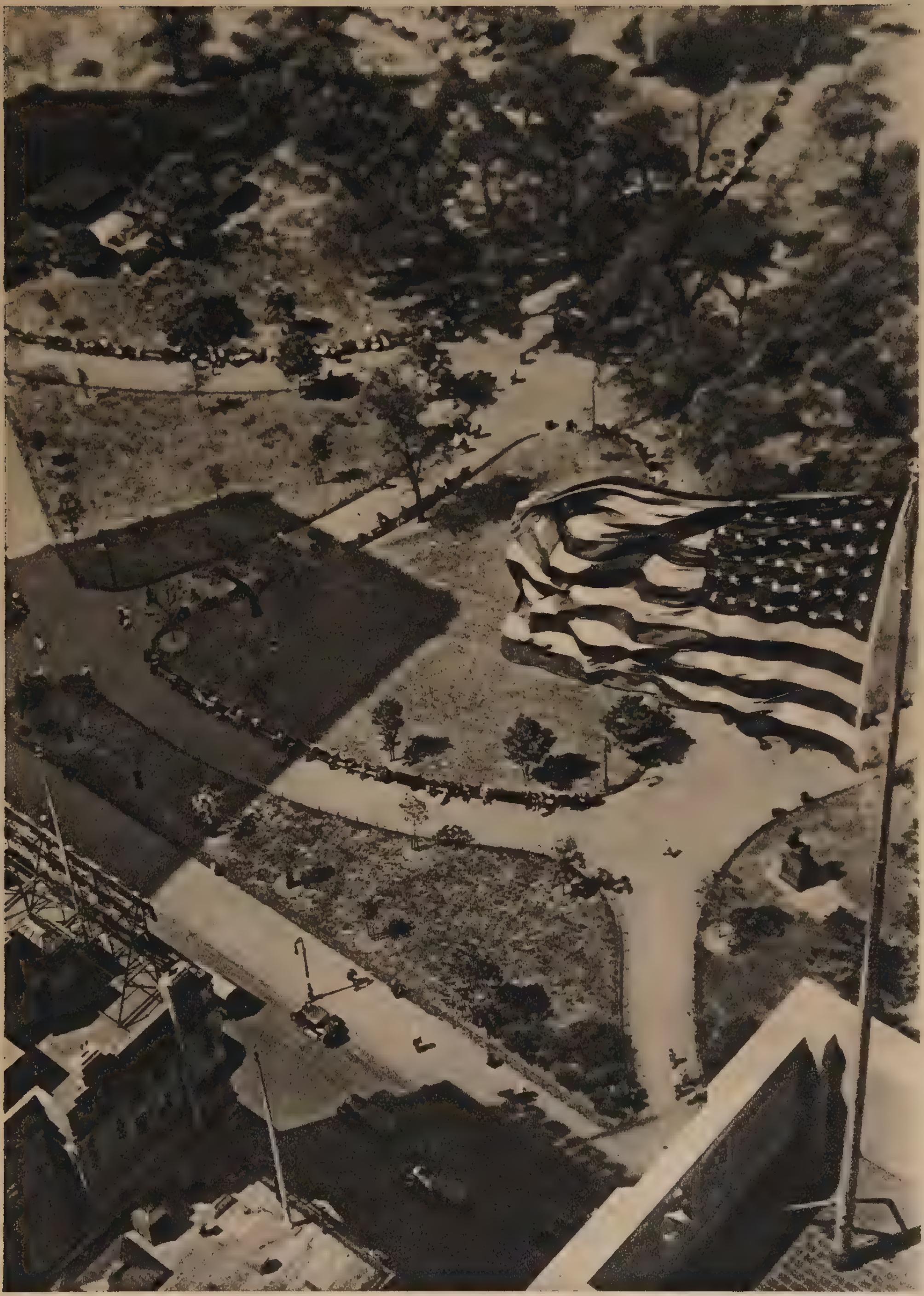
Into and out of Lower Manhattan three million workers move every day. Packed into one geographic panorama, from left to right, are Jersey City, Ellis Island, Hudson River, Bedloe's Island, with the Statue of Liberty, New York City proper, Governors Island, East River, part of Brooklyn and Long Island City.



Photograph by Ewing Galloway

WHEN NEW YORK DELIGHTS TO HONOR A HERO

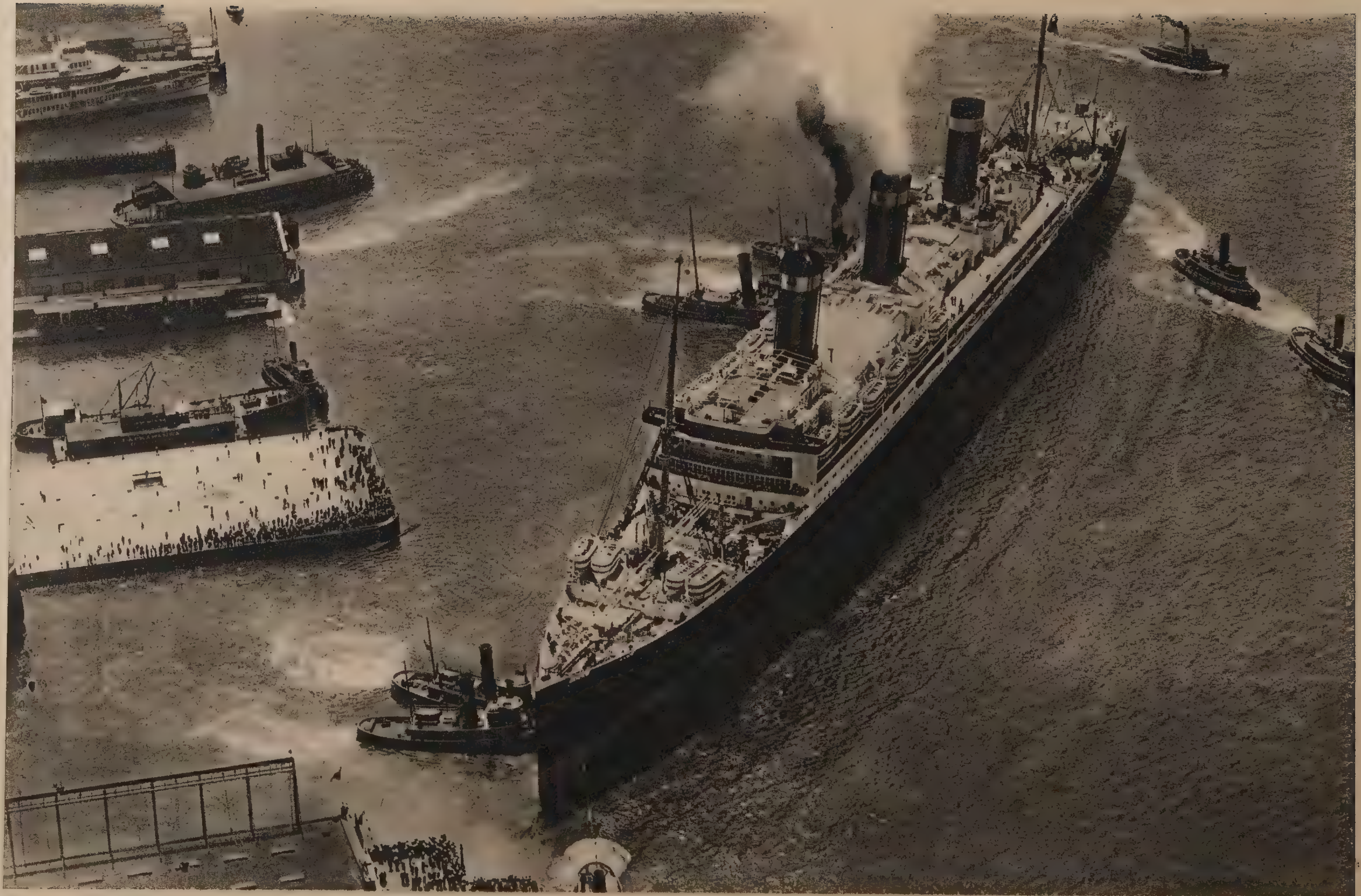
When celebrities of world wide distinction come visiting, New York lands them officially at the Battery, and from that point, many a historic parade has entered Broadway, to be showered with snowstorms of paper, leaves torn from telephone books, and miles of "tickertape."



Photograph by Ewing Galloway

MADISON SQUARE, FROM ATOP THE NEW YORK LIFE BUILDING

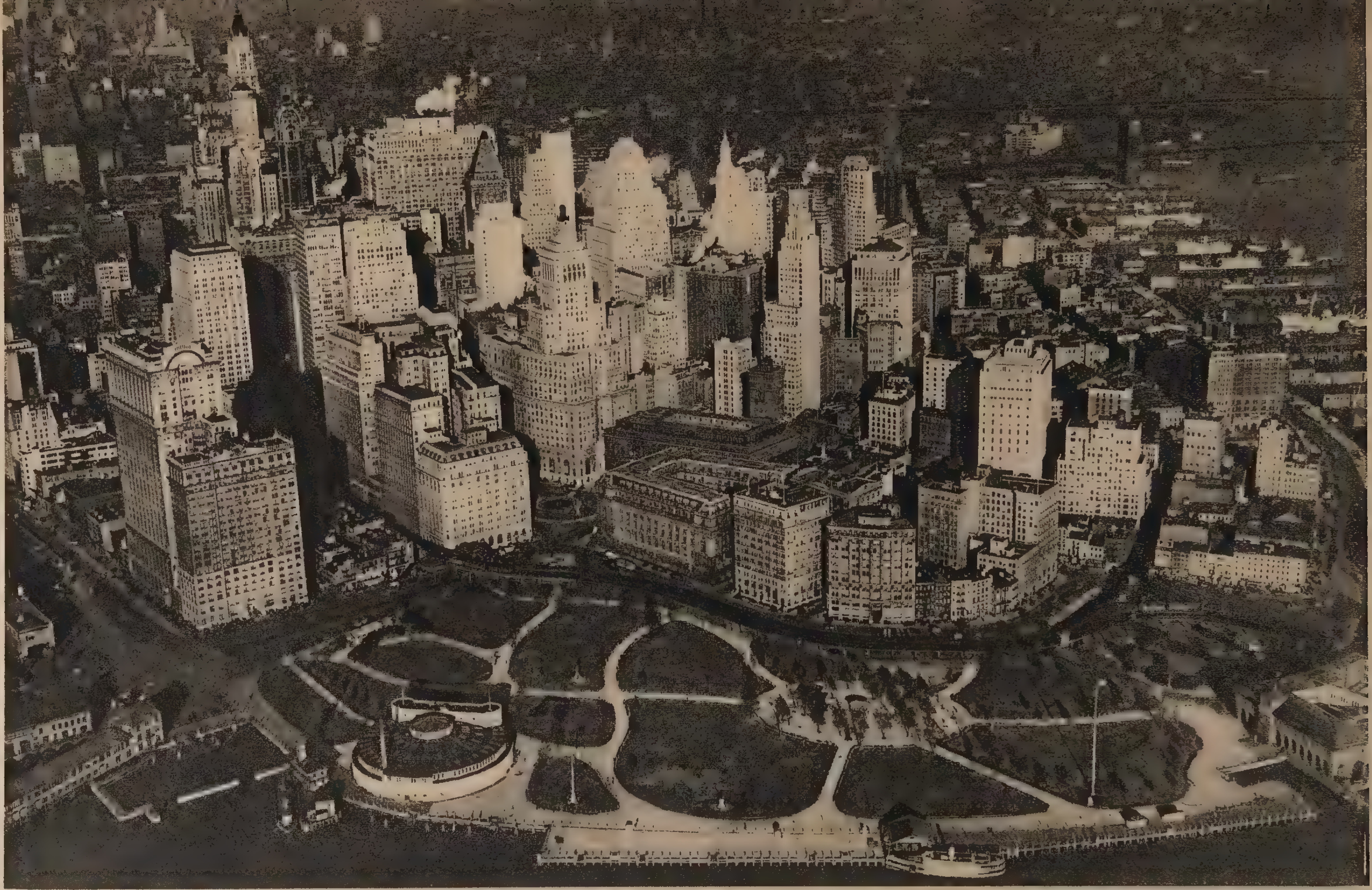
A great theater long famous for its horse shows, circuses, boxing matches, six-day bicycle races and other sports, formerly flourished here. Monuments to Arthur, Seward, Conkling, Worth and Farragut, stand in this Manhattan breathing space.



Photograph by Fairchild Aerial Surveys, Inc.

LONG STEAMER LANES LINK NEW YORK WITH EVERY CLIME

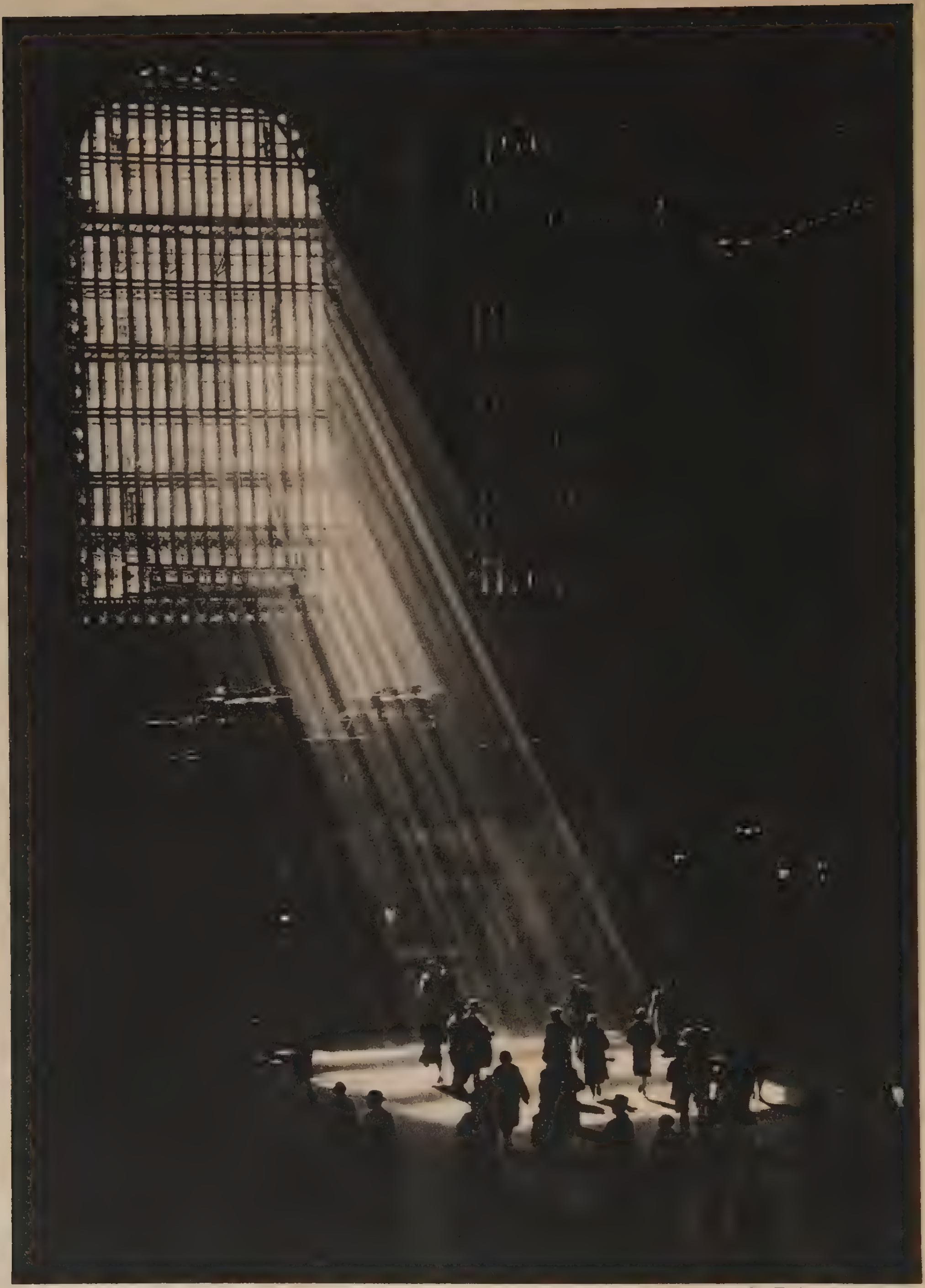
Day in and day out, the year round, ships come and go on an average of one each 20 minutes during the daytime. Here millions have landed from the Old World; and from here, each season, armies of tourists embark for Europe and many for South America. The *Leviathan* being docked.



Photograph by Fairchild Aerial Surveys, Inc.

THE COLOSSAL ARCHITECTURAL MASS THAT LOOMS ON LOWER MANHATTAN

Towering dizzily above dark, narrow canyon streets, their sheer bulk suggestive of Andean crags and peaks, these giant structures bring gasps of astonishment from foreign visitors who see them first from the decks of incoming ships. Battery Park and the Aquarium in the foreground (see also Color Plate XVII).



Photograph by Ewing Galloway

LIKE RAYS OF BENEDICTION BATHING SOME CATHEDRAL THRONG

Morning sunbeams stream through an east window of the Grand Central Terminal Concourse. On the balcony, in the background, appear two coaches of the De Witt Clinton Train of 1831.

Here obsolescence is a devil to be cast out, and to-day's builder is to-morrow's vandal. You see the famous Waldorf-Astoria turn to junk. Fountains of sparks hiss from its iron skeleton, as clinging workmen wield their fiery cutting torches. And hard on the heels of its wreck comes the amazing Empire State Building.

"It costs more to wreck 'em than the junk is worth," said a contractor. "Falling glass is dangerous. . . . Our first move is to send in a flock of hammer wops, with orders to smash everything that will break. . . . Old doors, tubs, stairways, panels, they ain't worth saving; you can't fit 'em into new-style buildings. . . . Yes, of course, these quick changes make many old-timers feel sad. . . . One famous hotel was wrecked where a certain old lady had lived for years. She died soon after they closed it. . . . Her favorite waiters went to her funeral; the hotel orchestra went, too, and played some of the pieces she used to ask for."

To widen streets, you see houses sliced off in front as with giant shears. Four hundred buildings wrecked to extend a subway spur; trainloads of dirt hauled to the river front and dumped to make a park below Riverside Drive. In cyclonic devastation, whole neighborhoods razed for new bridge approaches.

Swiftly the old landmarks fade. Only Grant's Tomb and similar objects of sentiment seem safe. If even the Sphinx stood on Fifth Avenue, somebody would probably want to wreck it to build a skyscraper! Here is no space for static things. All monuments now are to changing business, revolution in architecture, and new ways of doing things. Even the days of the new buildings themselves are numbered, though their function endures. Through myriad whispering wires the city hears and talks; but the great New York Telephone Building could as well stand over in the Jersey meadows. Some day it may.

You can get an easy idea of how fast New York grows if you can imagine that five or ten years ago a man got up on top of the Times Building with a movie camera. Suppose that he trained it back and forth over growing Mid-Manhattan, and cranked and cranked till yesterday; then, his film developed, he should show you a motion picture of the city's growth in recent years. By many cuts and running it fast, imagine this picture shown in, say, two or three hours. You would see old buildings crumbling down and new skyscrapers hastening heavenward, pushing up like giant mushrooms. It would be unendurable.

Compared with medieval cities, think how fast New York grows. Time was when men lived their whole lives in the shadows of cathedrals then building, yet saw walls rise only a few yards. To-day, in New York, bricklayers may run walls up two stories in a day. A building of 50 floors is begun and finished in about the same time it used to take a Sioux to kill a buffalo and tan its hide for his wigwam. Chrysler's Tower in Abraham's time would have been a blasphemy, as when the confusion of tongues fell on men who dared build Babel. Now it's only another skyscraper, although the world's tallest—until the Empire State Building is completed (see page 519).

MEN CROWD MANHATTAN LIKE SEABIRDS ON A ROCK

Between crowds and skyscrapers is reciprocal affinity. Each is the cause of the other. Into that part of Manhattan below 59th Street there comes to work every morning an army of people equal to the population of Paris or Chicago. No other spot on earth is so crowded with men and houses.

It reminds you of one certain rock near a coast where cormorants, gulls, and pelicans all come to roost. Other islets are near, but the fussing birds crowd and defile only their favorite rock. They pack it so tight that if one bird raises a wing to stretch, another is pushed into the sea.

Thus men crowd Manhattan rock. Not only that. They bore holes in it, dig tunnels under rivers, and push bridges over to it, so that still more men may reach it hastily. The passengers on its transport lines each year outnumber all the people in the world. Those passing through Times Square Subway Station alone last year equaled in number half the inhabitants of the Western Hemisphere.

So jammed is Fifth Avenue now that in busy hours a man walking goes faster than a bus. In many streets motors average less than four miles an hour.

"Why do you drive a horse?" I asked a lower Broadway teamster.

Photograph by Fairchild Aërial Surveys, Inc.

THE WOOLWORTH TOWER TICKLES THE CLOUDS

Fog or low cloud fields often smother all Manhattan, like the smoke pall of a burning city. Beneath this blanket, somewhere, Broadway's life is throbbing.

"He's cheaper to start and stop than a truck and easier to get out of tight places."

Civilization is shaped by beliefs. New York believes it must hurry, and you see the strain in people's faces. They run to work and from work, and to avoid being run over. In crowds, haste is more than speed. Draw aside in the Grand Central Station and watch the mad morning rush. At such a time and place, one expects little order; certainly no stately procession, as Noah's animals marching into the Ark. But here is a mob. Turnstiles are sometimes locked to check its rushes, and guards are powerless before its giant push. Yet, though men dart, dodge, run around each other, and leap forward into the smallest open space, actual progress is slow. Everyone hurries, but moves more slowly than a man walking alone in a village street.

But congestion seems the penalty of being a city. Deep chariot ruts in Pompeii's paved streets show that even the Romans battled with traffic.

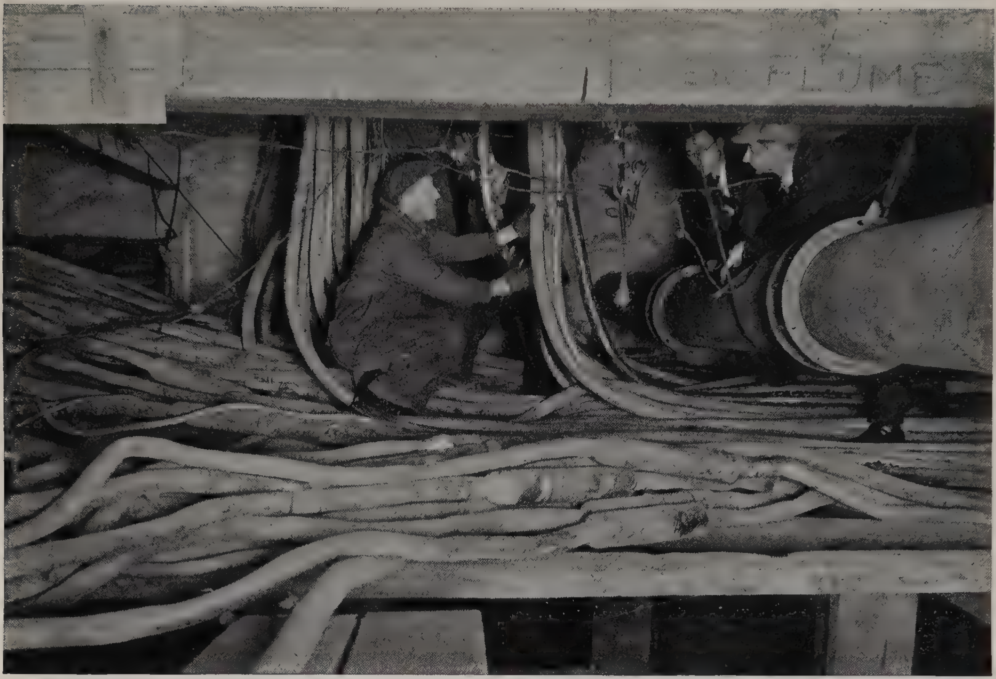
New York's fight to keep men and things in motion knows no lull. Now it builds a great elevated express highway, a novel thoroughfare many feet above the street. It will run along the Hudson River water front from Canal Street north to 72d, with ramps for access and egress at a few important cross-town streets. At 72d its outlet will be into Riverside Drive.

Think what this will mean to crowded New York! A broad, free path of two 30-foot roadways, with no grade crossings, able to carry from 5,000 to 9,000 motor cars an hour, at a speed of 35 miles—*right over all congestion* (p. 535).

Then there's the new tunnel, to run under tidewater from Brooklyn out to Staten Island. It will take from two to four years to bore this bold submarine highway.

ALL ROADS LEAD TO NEW YORK

Rivers and bays are crowded, as well as the city streets. That hoarse, unbroken blast is from the harbor. Look down from the Woolworth Tower and see our fleets battling for trade against alien ships. So thick are steamers that collisions seem imminent. From every nook and cranny of the world they come,



Photograph from Gordon R. Crecraft

PUZZLE: FIND UNDERGROUND SPACE FOR ANY MORE THINGS

Wires, tubes, tunnels, pipes, conduits, sewers, subways, water and gas mains battle for subterranean right of way. Where to put more, as the city grows, is an ever-harder problem.

as countrymen flock to a village store. Goods moving in scores of millions of tons.

No other port anywhere is so busy.

One ocean ship and four long freight trains every 20 minutes of daylight. More than 40 per cent of our oversea trade and a large share of our water-borne home commerce passes through this funnel. Nature smiled when she laid out the port. Within a 25-mile radius of City Hall, on Manhattan, there run nearly 800 miles of water front. The channel to open sea is deep and direct. Tides are easy; ice jams and bad fogs are rare.

As a fan's ribs run together at its handle, so the net of Atlantic steamer lanes converges here. To England, to all the maritime countries of Europe and the Mediterranean, New York is the chief port in the Western Hemisphere. From South America, from everywhere, sea trade flows to it.

This port grew so big and spread so far that New Jersey and New York State made a compact to plan and develop it jointly. This joint agency is called the "Port of New York Authority."

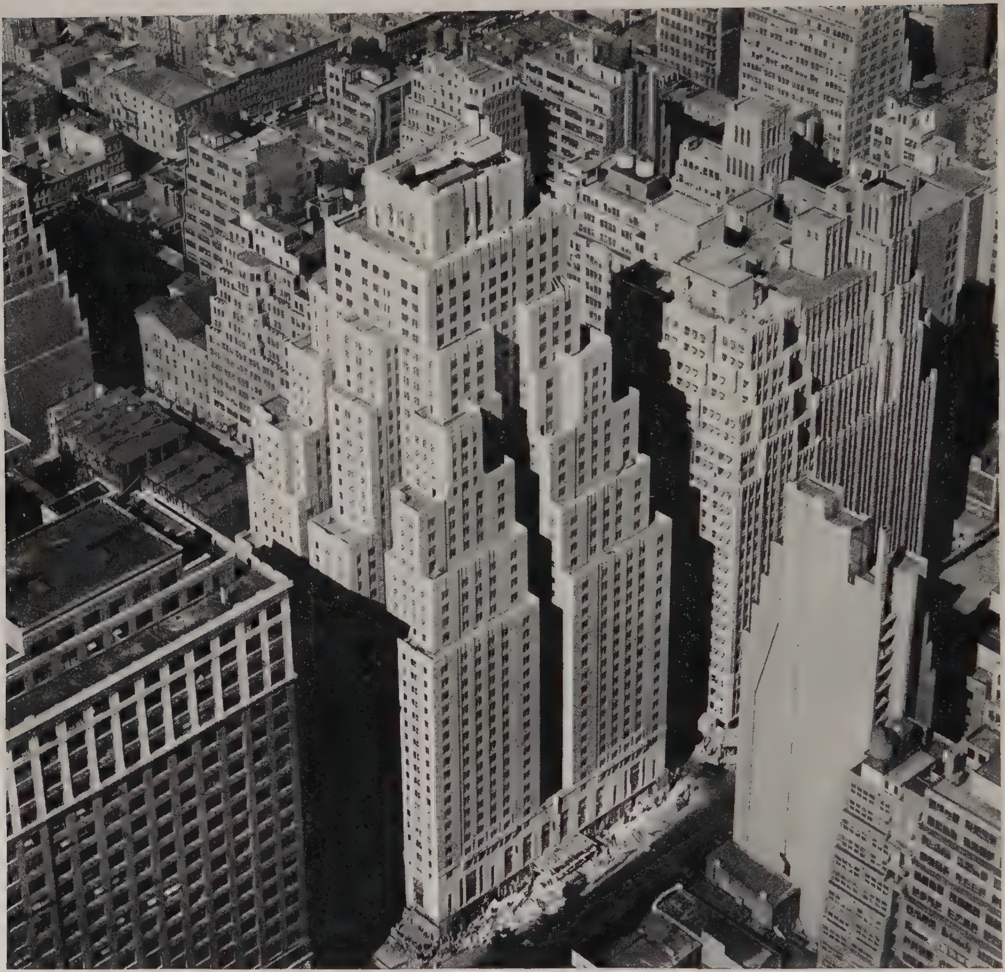
Huge and complex its problems are. It has to do not only with boats, but with new docks, terminals, bridges, tunnels, rates—in fact, every phase of traffic over or under the Hudson, East, and Harlem Rivers, Long Island Sound, Newark, Raritan and Jamaica Bays—an area embracing 1,463 square miles in the Port District.

In and about the great city dwell 10,000,000 people. To get food to them, and coal, is part of the Port's colossal task; each year the freight stream swells. More slips, car floats, ferries, train yards; more and more tunnels and bridges must be built.

Traffic across the Hudson doubles every eight years. It is estimated that even the new Holland Tunnel, capable of moving 50,000 vehicles a day, will have reached its capacity by 1934. Already, to relieve it, another vehicular tunnel has been proposed under the Hudson near 38th Street.

HERE RISES THE WORLD'S GREATEST SUSPENSION BRIDGE

Across the Hudson to Fort Lee, New Jersey, from 178th Street, is being strung



Photograph by Fairchild Aërial Surveys, Inc.

THE NEW STYLE OF "SET-BACK" BUILDING: THE HOTEL NEW YORKER

So high are buildings, so complex the riddles of weight, stress, steel, stone, pipes, wires, elevators, etc., that no longer can any lone architect or builder supervise construction. On big jobs now one may find heating, lighting, ventilating, plumbing, elevator, and structural engineers, as well as agents of the bankers, mortgagees, or bondholders who financed the building, urging that it be so arranged as to yield maximum income.

a new suspension bridge of incomparable size. Between its Herculean towers swings a single sweep two-thirds of a mile long—a span almost twice the length of any yet reached.

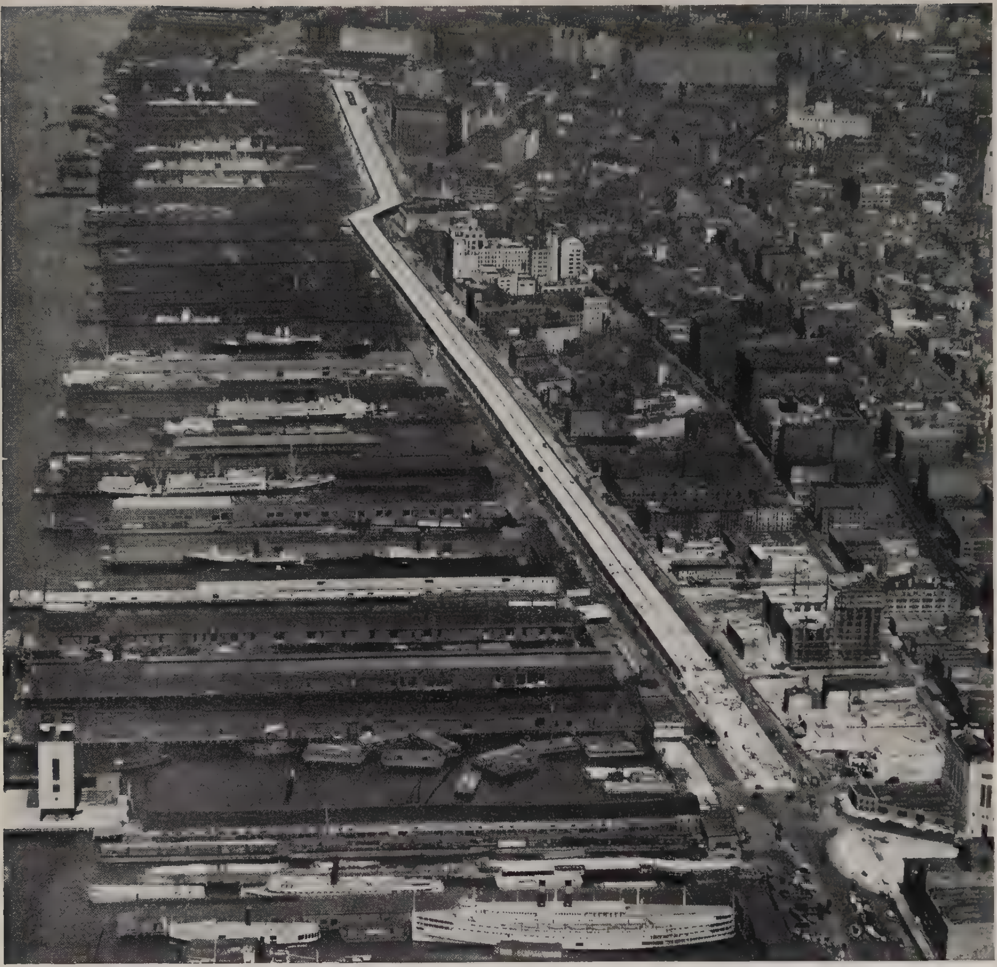
While the Brooklyn Bridge carries its load on four 16-inch cables, the New Hudson Bridge swings on four 36-inch cables. They pass over towers 600 feet above the water. Of the "parallel wire" type, in each cable are 26,474 strands, bound as a unit.

The stupendous strength of this bridge is revealed in the weight of the cylindrical cables, spun one wire at the time. A linear foot of a cable weighs nearly 3,000 pounds!

This giant span will carry rapid-transit tracks and eight lanes of vehicles.

UNDER NEW YORK, MEN DIG AND WORK LIKE MOLES

This is the thought one always gets when he pictures New York as a whole: How much easier to have built it on land uncut by so many rivers and bays. Crowding the millions on Manhattan and handling all their goods on this island rock



Photograph by Fairchild Aërial Surveys, Inc.

A NEW ELEVATED SPEEDWAY RISES OVER HUDSON-RIVER-FRONT TRAFFIC JAMS

This motor boulevard, built now as far north as 22d Street, will carry swift streams of cars between Canal Street and the foot of Riverside Drive. The white brick tower in the lower left is one of the ventilating shafts of the Holland tunnels.

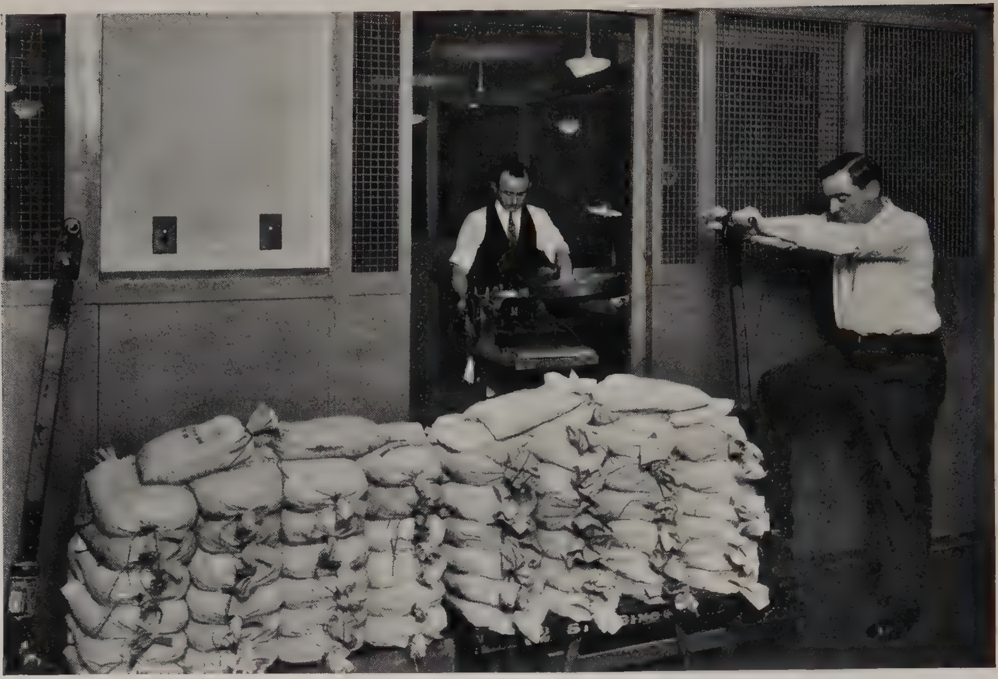
creates confusion underground as well as overhead.

Imagine that you could take hold of the edge of New York City as if it were a cigar-box lid and lift it back. Think what you would see! Tunnels, tubes, racing trains, millions struggling on subterranean platforms; all the underground world crossed and recrossed by pipes, conduits, tubes, cables, wires, water and gas mains, and sewers (see page 533).

In many regions these things are laid so thick there is room for no more. A utility company told me that one of its chief problems now is to find a place to put more things which must go underground.

Step down into any new excavation for a subway and you will find how the myriad pipes, mains, and conduits already in place are supported while excavation goes on.

A vast life of work, motion, and excitement goes on beneath the city. Few in the free air up above ever think of it. Strange rumblings may reach them, or the shudder of subterranean explosions, as still more tunnels are blasted out; but to the bright, open-air world outside little is revealed of this eternal struggle under-



Photograph from Federal Reserve Bank of New York

TONS OF GOLD CARTED ABOUT LIKE SO MUCH WOOD AND COAL

Vaults of the Federal Reserve Bank extend far below street levels. Into these giant coffers coin and bullion pour from many lands, and from them are shipped abroad in the delicate balance of international banking. In the background a clerk runs a money-counting machine (see, also, text, page 552).

ground to keep the great city in light and motion, to water it and make it articulate.

POWER USED HERE WOULD SWING THE CITY INTO SPACE

Without electricity, modern New York could not be. And, more than to any other one man, it owes its greatness to Thomas A. Edison. From creation till recent years, all power was but the effort of men, beasts, wind, and water. Even steam, as we count time, is new.

Hoists, wound by blindfolded horses, were lifting goods when Edison, in 1882, gave New York its first electric current. "In some places," he says, "a horse would be taken upstairs and kept there until he died."

Now the stupendous total electric strength of New York is almost incomputable. One nimble-witted engineer has figured that its elevators alone would carry 10,500,000 people 78,500 miles a day!

This power, hurtling a thousand subway trains through colossal bowling alleys, fairly pumps millions of people a day in and out of the city. Land, farther and farther out, turns from mere soil to real estate when wires of power and light lead to it. New York never grew fast till electric power came to pull its trains without smoke. It affects the ebb and flow of human tides, industrial booms and breaks, and the shifts of trades.

On Broadway giddy electric signs flash and run. Millions who know the White Way remember the fiery kitten playing with a ball; the galloping horses of the chariot race; a certain wind-blown petticoat, when they still existed, and even the colorful champagne advertisements of long, long ago. Similar signs to-day bring enormous rents. Here, on Broadway, darkness never falls. Here, figuratively, the sun stands still, as Joshua bade it do when he assailed the Amorites. More "eternal" than mythical temple lamps, the lights of New York never go out. Like clocks, calendars, and equinoxes, they keep step with time.

Photograph by Wide World

WHEN ELEPHANTS RAN WILD IN HARLEM STREETS

Restless from waiting their turn in an animal act, these baby elephants bolted from back stage of a vaudeville theater. Stage hands and trainers finally herded them into a near-by police station.

Trains, trucks, tunnels, and pumps; stop-and-go signs, fire and police alarms; elevators, illumination, and communication; telephones, telegraphs; bells, batteries, and buzzers; beacons, boilers, broilers, ovens, ranges, and toasters—nearly 65,000 uses, engineers say, New York finds for light and power.

What if the current failed? Panic, paralysis; millions marooned in skyscrapers or caught in subways—and all dark! Fantastic thought; power stations are many and independent. Only some cosmic upheaval could bring this cataclysm. But merely to ponder it is to show the utter dependence on power and light.

WHAT THE MILLIONS DO WHO DAILY CROWD MANHATTAN ROCK

Life here seems gay and blithe—to the casual.

Soft lights, low music, sumptuous cafés, luxurious lobbies, fashion parades on Fifth Avenue; $30,000 fur coats, blooded horses galloping in Central Park, imported limousines, glistening jewel shops, costly foods, lavish theaters, rare cut flowers, priceless art treasures, pearls, paintings, and palaces—a city rich and scintillating.

That side the visitor knows. What he seldom sees are 15-cent Bowery "flops" and the ragged, hungry bread-line; and thin-clad, shivering men and women waiting in early morning cold to grab the first papers on the street, to search the "help wanted" columns, and dart off, first in line for the chance at a job.

Manhattan works. The signs of opulent ease are on the surface. Among the millions who work for salaries, for wages, or on commission, competition is intense. The battle for jobs never ends—a job at anything, from running an adding machine to playing a zither. Only toil, steady and tremendous, lets New York live in all its complexity. There are more clerks and salesmen than Uncle Sam has sailors and soldiers!

Butchers, bakers, bellhops, bus boys, and barbers; tinners, taxi-men, tailors, typists, printers, painters, poultry-pickers, and piano-tuners; florists, fishmongers, and fiddlers; waiters, window-washers, and wharf workers; singers, street-sweepers, and sandwichmen; cooks, candy-makers, riveters, and steel workers; brokers, bankers, presidents of corporations known from Chile to China—they're all in the day's work.

Much of New York's work is for its trainloads of daily visitors. Every third vehicle is a cruising taxicab. In 800 theaters and other places of amusement are seats for 1,200,000 patrons.

Vast armies work in hotels and restaurants.

And everywhere, again and again, you see how much men now enslave electricity. Theaters, stores, and office buildings use air-conditioning plants; big fans draw in fresh air, wash and dry it, cool it, and run it through the rooms, pushing out stale air.

THREE-FIFTHS OF AMERICAN WOMEN'S CLOTHES MADE HERE

Here is made three-fifths of all women's clothing worn in the United States. Out of every six people engaged in manufacturing in New York City, one is making women's wear. But slow handwork is no more. Huge output is reached by power machines; they sew, cut, and work buttonholes, put on buttons, insert sleeves, embroider, bind, and pleat, doing all that old sweatshops once did by hand.

Giant skyscrapers, especially built and lighted, now house the myriad garment workers. From these they swarm at noon, to glut Seventh Avenue and to stare up at the sky, as men always stare up at it when released from confinement.

Into this fur market millions of pelts pour each year. Seventy-five per cent of the Nation's wholesale fur trade is here. High wages of World War days put American men into silk shirts and changed women from cloth to fur coats. Fur-wearing endures. More fur workers are gathered here than anywhere else. With electric machines the pelts are washed, dyed in vats fitted with agitators, sheared, and then finished by electric cutters and stitchers. Even in matching skins, special light fixtures are used.

Likewise the power line revolutionized printing. Now type is set by hand only on special jobs. Linotypes and monotypes are run by current; it runs the presses, too, printing from one to four colors at a time. In binderies you see folders, stackers, stitchers, trimmers, cutters, and glue cookers all run by electricity. So with photo-engraving, lithography, and rotogravure work. Though many printing plants leave New York, for one reason or another, the volume of printing does not diminish; at some 3,000 printing plants nearly 57,000 people are at work. Probably 70 per cent of the 110,000,000 books marketed yearly in America are made in New York.

16 ELECTRIC MAN-POWER SERVANTS FOR EVERY RESIDENT

An engineer estimated the electric current used here, in terms of man-power. It works out at the rate of 16 servants per hour for each resident of Manhattan. Certainly the increase in the use of electricity has given each worker an earning capacity never before dreamed of. Ninety-seven per cent of all power exerted here is electric.

Think of mail! From 126th Street to downtown Brooklyn are 27 post offices, linked by 28 miles of underground tubes, with 54 receiving and sending terminals. Through these pneumatic tubes, at 30 miles an hour, about 140,000 containers are shot a day, each holding up to 500 letters. No mail truck could run through congested streets that fast.

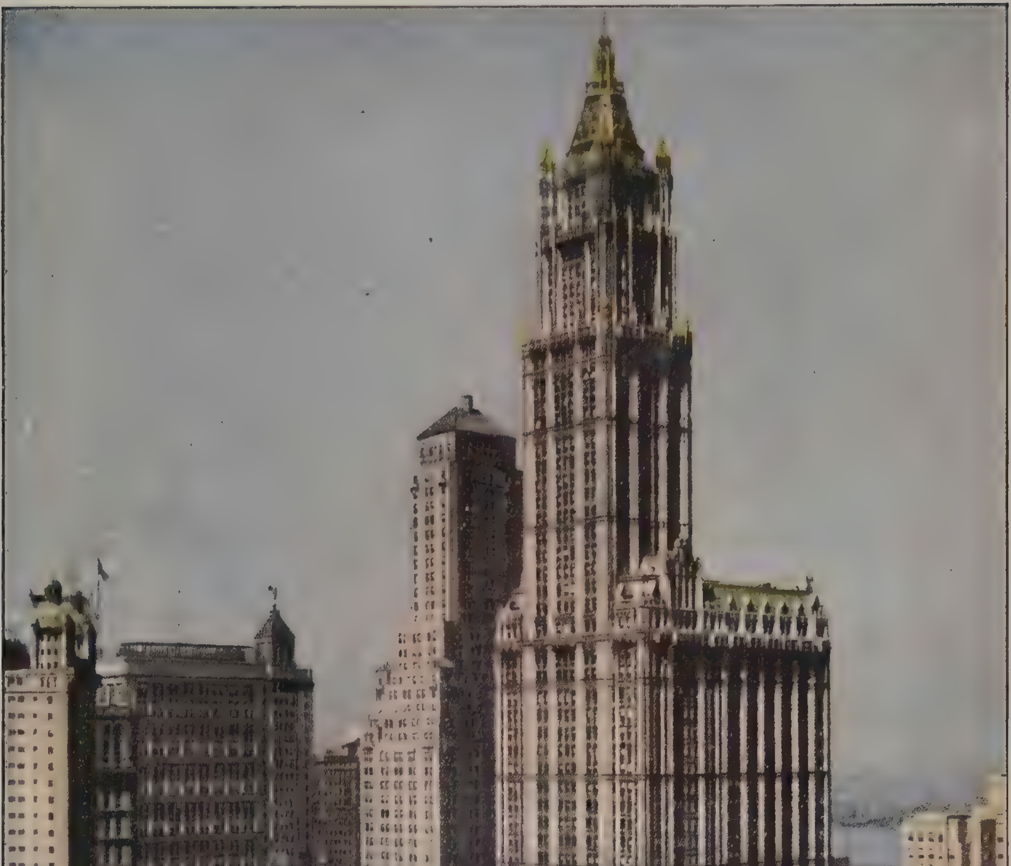
The local telephone company gets calls at the rate of about 100 a second. Its staff is larger than the standing Army of the United States.

Through the 50 miles of pneumatic tubes used by telegraph companies in Lower Manhattan, there rush so many messages a day that no attempt is even made to count them. Most of these are typed by electric printers in sending and so transcribed at destination.

Regiments gather news. Two press groups alone send out close to 1,200,000 words a day. They use 3,000 printer-telegraph machines, which work so fast that any paper in the United States can be receiving the news in ten minutes.

FASCINATING AS BAGHDAD BAZAARS IS TRADE IN DEPARTMENT STORES

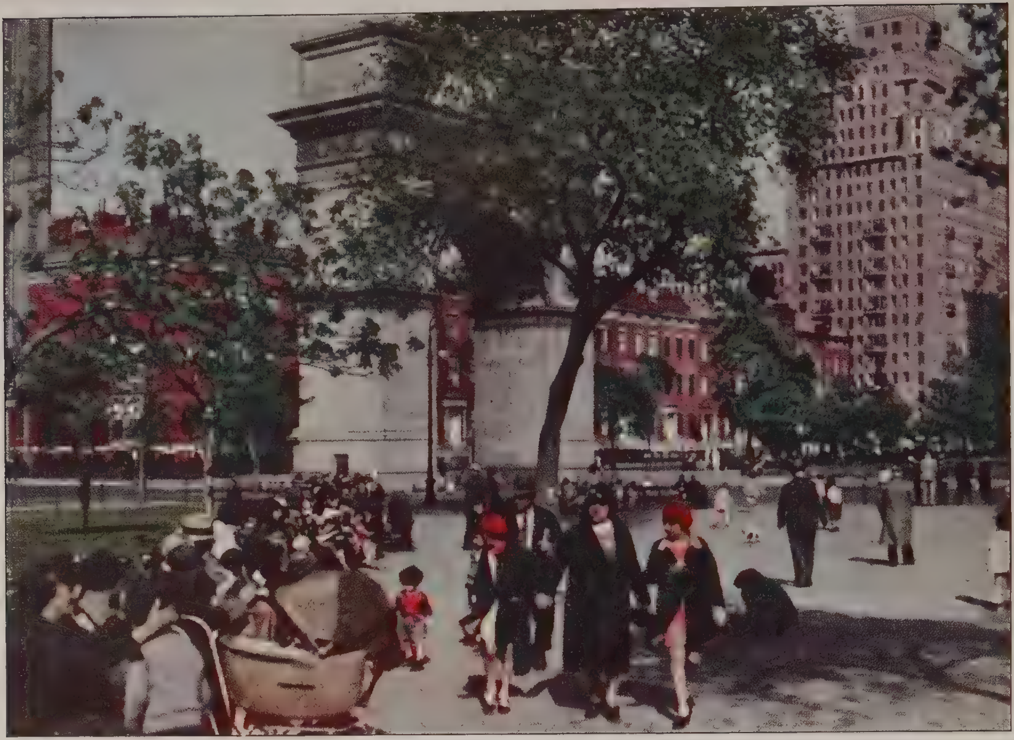
Ride up an escalator from the lower floors of a great department store. Look at the crowds. Two hundred and fifty



© National Geographic Society Finlay Direct-Color Photograph

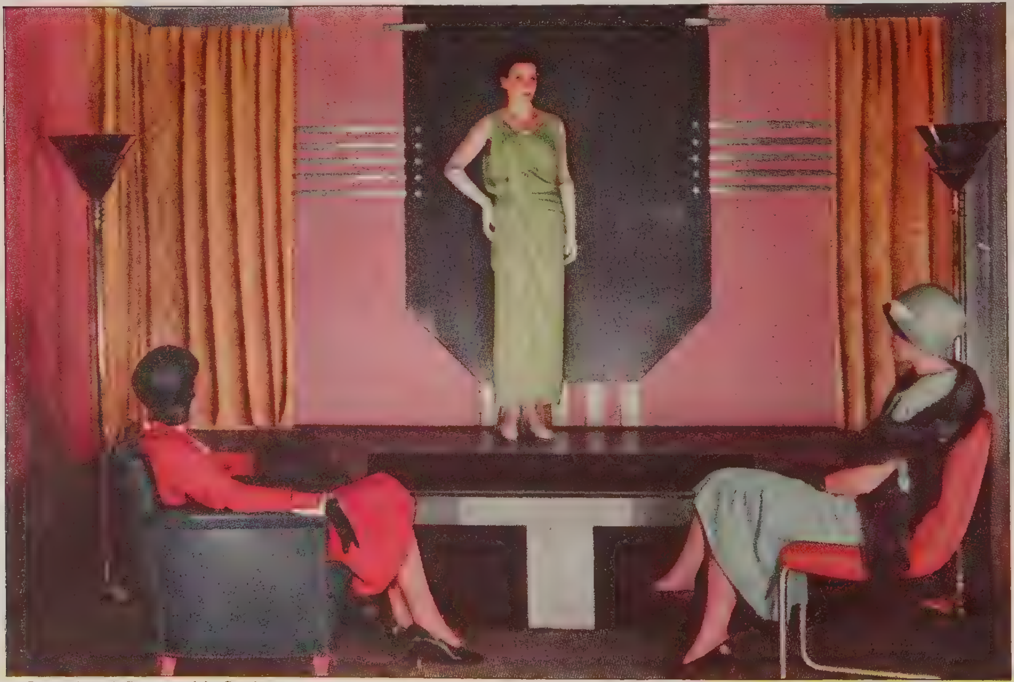
DIMES AND NICKELS BUILT THIS CATHEDRAL OF COMMERCE

The sixty-story Woolworth Building (792 feet) still is a prominent landmark of New York's skyline, although it has been eclipsed in height by both the Chrysler (1,100 feet), and the Bank of Manhattan (1,030 feet) Buildings. At its feet is the old Post Office, soon to be replaced by a park. In the immediate foreground is New York's classic City Hall, dating from 1803.



WASHINGTON SQUARE WAS ONCE A POTTER'S FIELD

This nine-acre bit of trees and grass is one of the oldest squares in the city. Washington Arch, designed by Stanford White, has served as an imposing portal at the southern end of Fifth Avenue since 1893. Many artists' studios face on Washington Square.

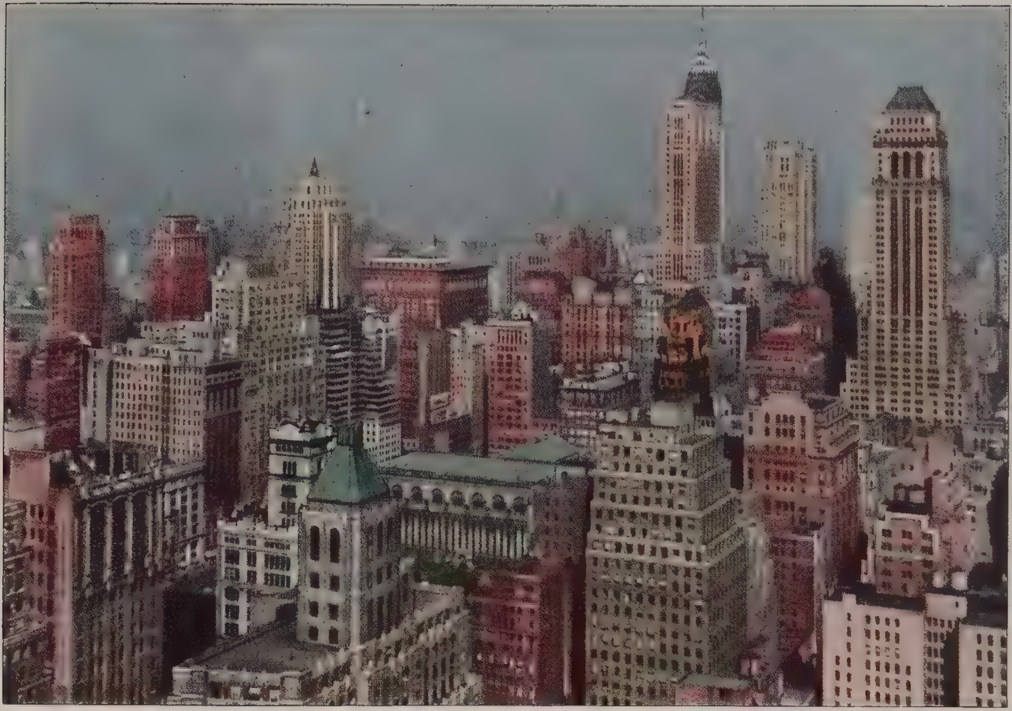


© National Geographic Society

Finlay Direct-Color Photographs

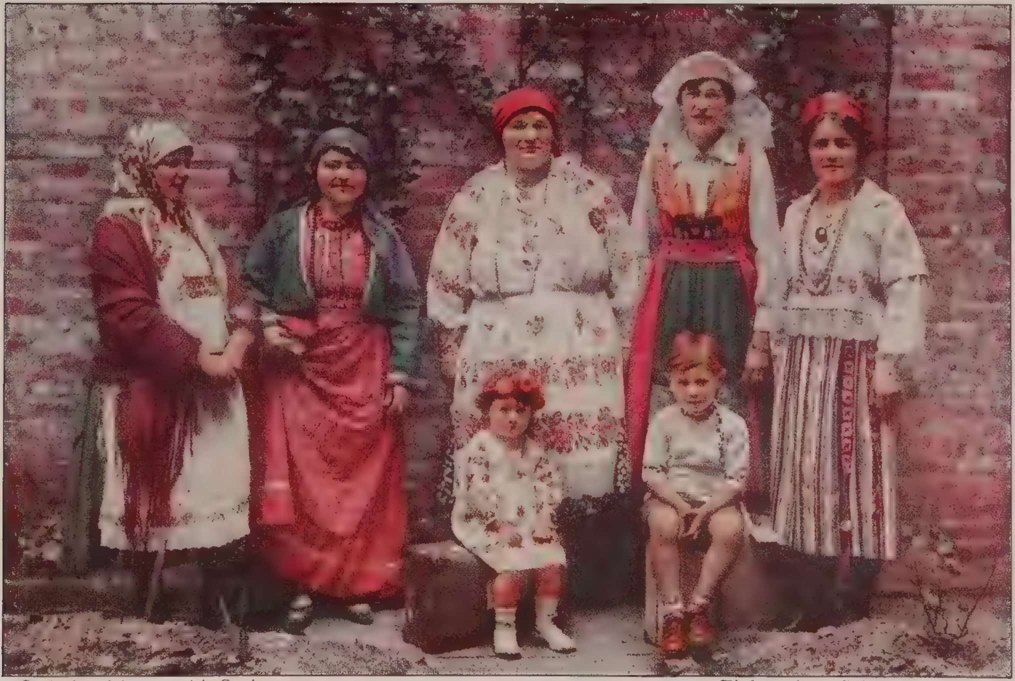
MODERN ART SETS A STAGE FOR MODERN BUSINESS

World-famous stores face Fifth Avenue. In one such shop this small stage with its colored lights is used by parading mannequins for showing new styles to visiting customers.



SKYWARD THE COURSE OF EMPIRE

Find the only patch of ground visible! It is Bryant Park (left of center) and the sole open space in the amazingly transformed Grand Central zone. In the background are many new giants, including the French, Lincoln, Chrysler, Chanin, and News Buildings.

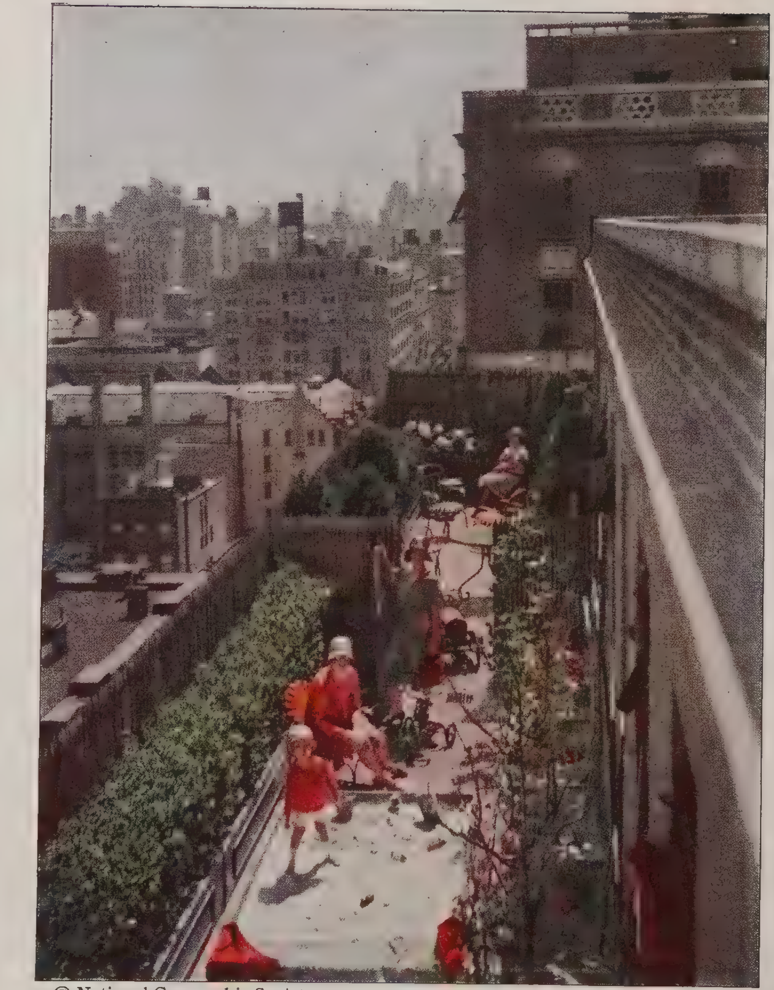


© National Geographic Society

Finlay Direct-Color Photographs

AMONG THE CITY'S TRANSIENT GUESTS

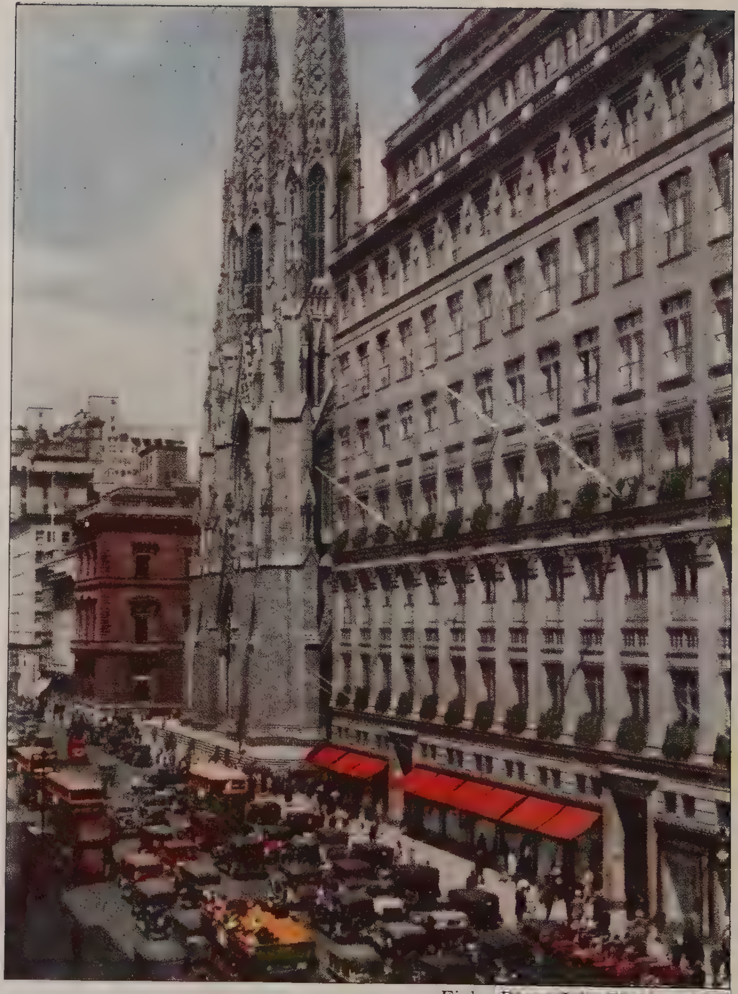
A group of immigrants at the guest house of the Travelers Aid Society. Armenian, Russian, Slovak, Swedish, and Estonian nationalities are represented.



© National Geographic Society

A MODERN CLIFF DWELLER'S GARDEN

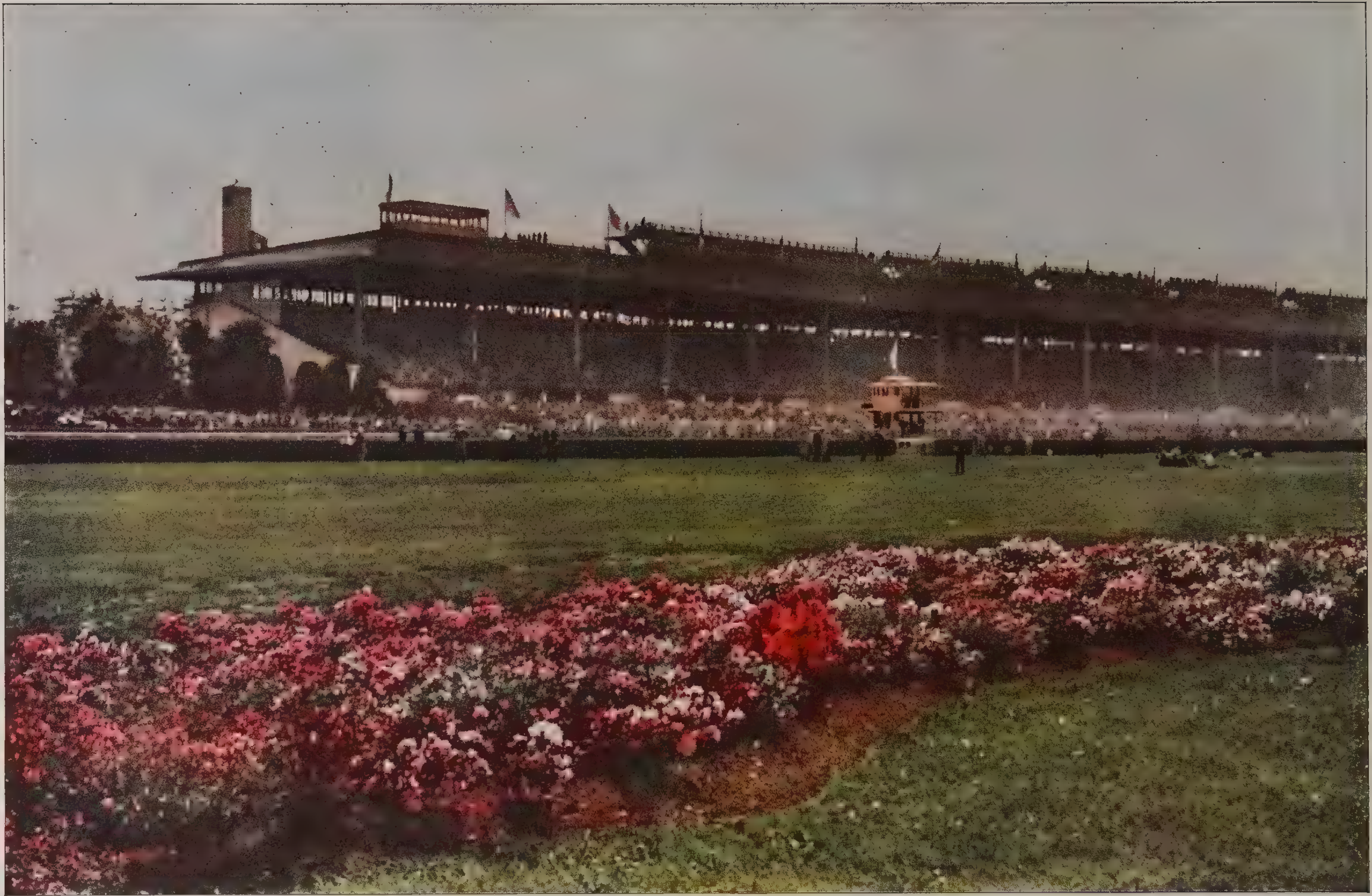
The yard of a "penthouse," or private home, atop one of the mid-town apartment buildings. These residences in the sky are embowered with flowers and green shubbery. Picket fences protect children at play.



Finlay Direct-Color Photographs

FAMOUS FIFTH AVENUE, NEAR ST. PATRICK'S CATHEDRAL

Dignified churches, dazzling shops, clubs, and mansions line the Nation's most fashionable thoroughfare. No wires, signs, or inappropriate industries appear on this historic avenue which separates the East from the West Side of New York.

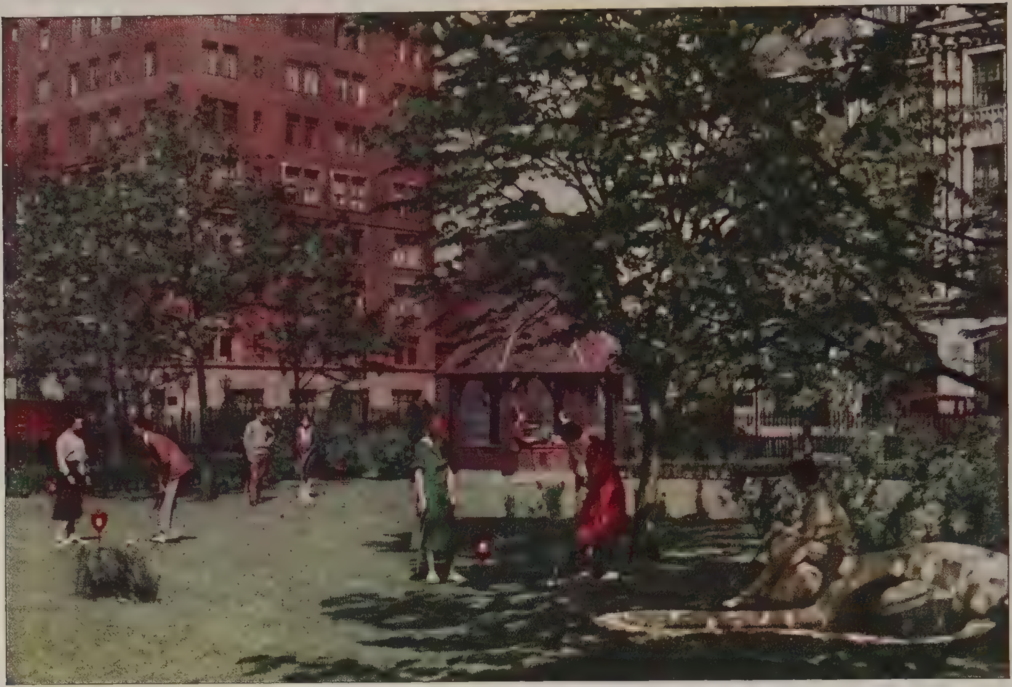


© National Geographic Society

Finlay Direct-Color Photograph

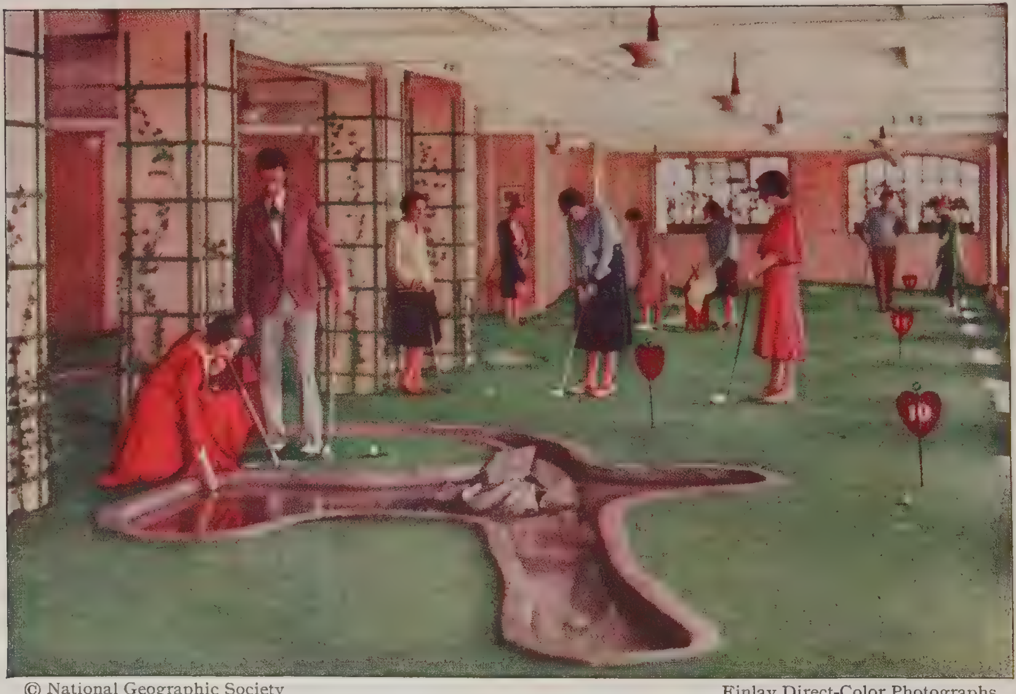
BELMONT PARK ENJOYS THE SPORT OF KINGS

This huge racing plant, one of the most beautiful in the country, is situated near Queens Village, on Long Island. During the summer racing season it is a scene of color, animation and excitement.



A TINY GOLF COURSE SQUEEZED INTO A GREAT CITY

Tudor City, on East 42d Street, has the only outdoor golf course on Manhattan Island. Three-quarters of an acre in area, it is valued, from a real estate standpoint, at more than a million dollars.



© National Geographic Society

Finlay Direct-Color Photographs

WHEN THE COUNTRY CLUB COMES TO TOWN

This miniature course is on the ground floor of a large apartment building. Here on artificial "turf" fairways the business man and woman have time for a round of golf during the noon hour.

WHEN THE FLEET COMES IN

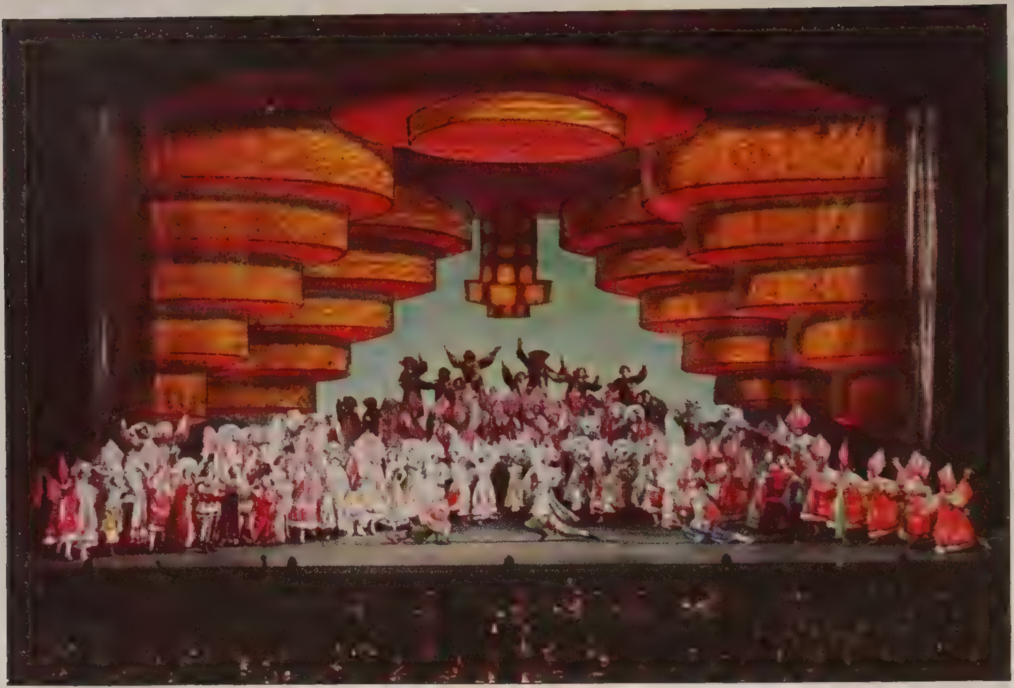
The annual visit of Uncle Sam's gray seafighters is always an exciting event in New York. Thousands of visitors are carried out to the ships in motor boats from the Hudson River landings.

© National Geographic Society

Finlay Direct-Color Photographs

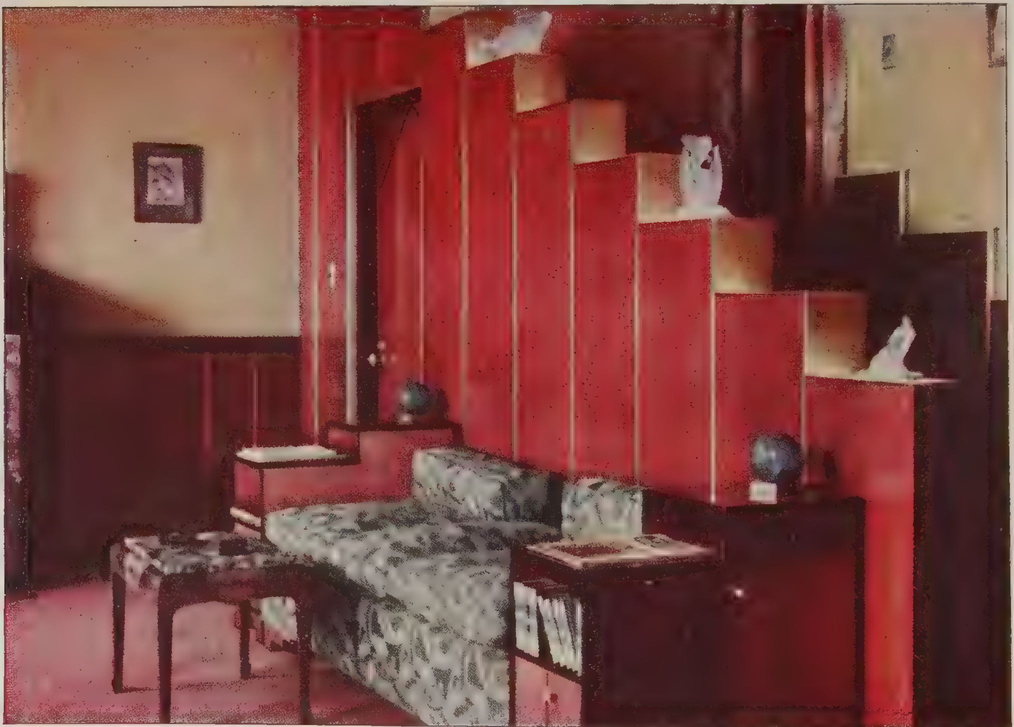
PALACES OF STEEL FOLLOW IN THE WAKE OF THE "HALF MOON"

The S. S. *Mauretania* in her Hudson River dock. From New York harbor ply the world's largest and fastest steamships. Cargo and passengers are carried to almost every port on the Seven Seas.



CLASSIC MUSIC AND PAGEANTRY OF GOTHAM'S STAGE

A grand finale in the world's largest "palace of the motion picture," near Broadway and 50th Street. The "feature" picture at many New York cinema houses is preceded by vaudeville and other "stage shows."



© National Geographic Society

Finlay Direct-Color Photographs

NOW ART INVADES THE BUSINESS OFFICE

In many of New York's modern temples of banking and commerce, the interior decorator has made radical departures from once conventional office and waiting-room furnishings.

thousand customers a day pouring in through 50 entrances. So much money taken in that ironclad trucks with armed guards haul it away in loads—so much that any one day's receipts would buy outright a big store and all its stock in a fair-sized provincial city. Goods received and sold faster than ever before—trainloads.

These vast trade emporiums reveal the city's whims. One customer buys an incredibly big order of canned goods. "Please pack 'em well in fifty-pound waterproof boxes," he says. "I've got to move 'em up the Andes on mule-back."

Another asks for and finds whole canned chickens imported from Java.

A third waddles in and seeks the interpreter. "Oh, yes, she wants *Lebkuchen* from Nuremberg. Send her to the fourth floor."

Before the interpreters' desks you see a line of foreigners.

"What foreign language is most spoken here?" you ask.

"Spanish," says a Florida Cuban. "And most of our Spanish-speaking customers are Porto Ricans. Why? I don't know. Here's another odd thing: most of them may live in New York four or five years, doing all their shopping in small stores, before they get up their nerve to venture into one of these big places and take their first ride on the escalators."

"How many questions do I answer?" echoes an information-desk girl. "By actual tally, from Thanksgiving till Christmas, about 8,000 a day. But, then, remember that 27,000 customers an hour ride up to the second floor on those escalators, and we make more than a million and a quarter cash sales a week. Look at the cash tubes, for example. In a single day those little packets travel a total distance of 11,363 miles."

One great store sells for cash and seeks always to undersell its rivals by a fixed percentage. So price wars occur. An amusing tale is current of a battle royal over certain coolie coats. The supply was limited; two rival stores got them all and began a price-cutting war. Originally the coats had been marked to sell at $12.50; but, as the war waged hotter, one of the rivals, with a daring gesture, marked his coats down to $2.50, at which price they all sold like magic. But next Monday they reappeared in the other fellow's window, selling again at $12.50! His clerks were the rival's "customers" for the $2.50 bargains.

"Advertising, like many aspects of retail trade, has changed a lot in my time," said one veteran merchant. "I remember a little town out West and its leading merchant. His store stood on the town's busy corner, where his three sons helped him sell drygoods. Every Saturday noon in winter this merchant would get up on the roof of his store and throw a new overcoat down into the street. The crowd scrambled for it. That was advertising then. Incidentally, one of the merchant's boys was supposed to be quick enough to grab the coat and rush it back to the shelves, to be thrown down again next Saturday. It was a bad day for the boys if they let an outsider get away with that decoy coat!"

To-day the advertising department of any big store is one of its most carefully organized and closely watched factors. It is the motor that runs the business. Here one sees artists, designers, copy-writers, space-buyers, experts in styles and fashions, often in conference with buyers and department managers, planning their campaign weeks ahead.

ADVERTISING CENTERS IN NEW YORK

A huge share of all advertising activity in America centers in New York.

Pick up the public library files of any magazine or newspaper published a generation ago and look at the advertisements. Crude cuts; dull, perfunctory phrases. Then see the art, the appeal and human interest of to-day's best advertising. Choose any piece of modern "institutional" or "educational" copy. Here is a masterpiece, lifted at random from the files of the New York Telephone Company. It is entitled "Two Engineering Triumphs":

> In the third century before the Christian Era the Emperor Chin Shih Huan Ti began the building of the Great Wall of China.
>
> Three hundred thousand troops, together with numberless prisoners of war and native criminals, labored for fifteen years to fling across the steep slopes of mountains this mightiest of man's structures. More than a thousand years later the wall was rebuilt by the Mings, newly come to the Dragon Throne. To-day, after more than twenty-two centuries, it still stands—a rampart twenty-five feet thick at the base, from fif-

Photograph by Ewing Galloway

ONE FIG LEAF STARTED ALL THIS!

Women's clothes—more than half of all that America wears—are made here. But sweatshops are passing. Now workers, using electric-power machines, are housed in high, brightly lit structures grouped about the new garment center, between Broadway and Eighth Avenue, in Mid-Manhattan. A noon-hour throng of workers taking the air in 36th Street (see, also, text, page 538).

teen to thirty feet high, and, with its windings and turnings, nearly two thousand miles in length.

Its building was a magnificent piece of engineering, but of engineering for isolation. For it was a wall, a barrier to the free flow of communication.

Across America has been built a structure that in money and in human effort has cost far more than the sum of many Chinese walls. It scales mountains, swings across canyons, spans rivers, dips beneath the surface of the earth. In miles of extent it is measured, not in thousands, but in millions. It is made up of the wires and cables of a nation-wide network of telephone facilities.

It, too, is a masterpiece of engineering, made the more magnificent by the purpose for which it has been built. It does not separate. It unites. Instead of serving as a barrier between man and man, it sweeps barriers away. It is not a wall; *it is a highway for words.* It is an achievement not of isolation but of intercommunication.

In the Mayor's office hangs a good painting. It is the portrait, done by Edward Mooney in 1849, of a glorious servant of Allah, one Achmet Ben Amar, representative of the Imam of Maskat. That much you read in its legend.

"Who was this elegant, gold-fringed person?" you ask. Nobody knows. "Why, then, have his portrait in this place of honor?" Why not, is the answer; isn't it an interesting picture?

FOREIGN-LANGUAGE SIGNS DECREASE

With laws diking immigrant streams, you see the city get more Americanized. Fewer readers of foreign-language papers; more English. Fewer signs painted in Yiddish, Greek, Italian, German. Sit through a night in police headquarters and hear the endless tales of turpitude the telephone brings in. But they are no different from any other city's. For its size, and counting its racial problems, New York is well governed.

"Even the horses stop on the red-signal lights now," runs one favorite joke of traffic. "A runaway milk-wagon horse stopped and waited for the green 'Go' sign, and then ran away again! And Third

Avenue housekeepers time their soft-boiled eggs by counting red and green signals."

The bearded man with the "Pay-5-cents-and-see-the-moon" telescope; hawkers of mechanical singing birds, tin bugs that crawl or flap their wings; a woman in a faint, a taxicab collision—all bring a quick group of spectators here, as in Wenatchee, Washington. Le Bon explains this in his "Psychology of Crowds."

"Oh, mother, look! The circus is dead," cries an excited child, entering a museum of natural history. Upon a roof garden a temperamental man tries to quarter a Jersey cow. And a herd of calves—for what reason the world will never know—driven across 88th Street at midday is cheered by a crowd; and every one in that crowd by his cheers showed where he was born. Ask the man who runs the "Get-Your-Home-Town-Paper" wagon; he knows where New York crowds come from.

Photograph by Ewing Galloway

STORES ON WHEELS PARKED IN HESTER STREET

Like long lines of supply wagons that follow armies, these push-carts rumble into place each morning. Fruits, vegetables, meat, bread, candy, novelties, small hardware, clothing—all such and more are hawked from these carts.

NEW YORK AFFECTS THE THOUGHT, DRESS, AND BEHAVIOR OF THE NATION

"Civilization," said an oriental, "is what you do to environment; culture is what you do *with* it." Look in "Who's Who." You will not find that men of genius—writers, good doctors, chemists, inventors, sculptors, painters, engineers—are more numerous here than in cultured provincial cities. But New York is the center of American culture when its products are put up for sale.

To New York come nearly all scripts of plays, poems, stories, essays, articles, novels, and other books written in America. Most of them are rejected; yet the salvage keeps myriad presses printing carloads of books, papers, and magazines each week.

Here, too, come painters, canvas under arm; for here are some of America's greatest galleries, here its greatest turnover in pictures and other works of art. Marching with the painters come the designers, with new patterns for anything from modernistic jewelry to wall paper.

From here come most syndicated news

Photograph by Ewing Galloway

"WE DIDN'T BRING A THING THAT'S DUTIABLE"

No dutiable furs or jewelry, and of course no contraband liquor or drugs; only the usual "hundred dollars' worth" that every returning American tourist may bring in duty-free. A familiar scene to millions who have "passed the customs" on New York steamer piers.

pictures and features, standardizing the dailies from Maine to California; also, most world news, gathered by press services and distributed from here.

Here are more singers, musicians, actors, theaters, libraries, museums, and lectures than anywhere else, and from here the Nation gets its latest "song hits" and vaudeville skits.

"What impressed you most?" I asked of a newly arrived German journalist.

"That you Americans don't think," he said. "You're too busy." But that night thousands, unable to get tickets, rushed a public hall which had billed a lecture on the Einstein theory.

From here giant radio stations broadcast music and speeches on nation-wide hookups.

From here the "latest New York styles" penetrate the Union.

"New York may not create style," said a department store head. "That's a moot question; but we do influence it, and, through display and judicious pictorial advertising, we interpret it. American women put style above quality.

"Every important retailer now in the United States has some form of New York buying agency. A dozen big hotels here in Mid-Manhattan are almost given over to buyers from the interior. So it doesn't take the New York fashions long to travel across our continent."

HOTELS BECOME SEATS OF INDUSTRIAL FAIRS

Great hotels are no longer simply places to eat, sleep, and get mail. Many are become seats of industrial fairs and trade conventions. To cheer one group of buyers, trick horses, acrobats, and a herd of elephants were taken high up into a hotel ballroom.

Hardly a day but in every great hotel you see excited men, all branded with the same silk badge, hastening into an assembly room; bands, speeches, much handclapping, and flashlight photographs, amid much tobacco smoke; and the day's theme may be—well, new styles in hats, motor boats, shoes, knit goods, or automobiles;

or new ways of preserving food, saving forests, running beauty shops, teaching dancing, organizing labor, treating furs, practicing dentistry, boosting aviation, defeating prohibition, enforcing prohibition, raising the tariff, lowering freight rates, checking crime, breeding rabbits.

Here every important bank in the Nation has a correspondent and most great corporations have an office. Here, as industry knows, banks and business train each year many of those young men who go to far places to carry on for America in her constant battle for foreign commerce.

Photograph by Ewing Galloway

A DIZZY JOB ON THE TIPTOP

Daring workmen scale the very peak of the beautiful New York Central Building, setting new lamps that add to the city's nightly blaze of man-made moons, stars, fixed comets, and dazzling electric rainbows.

And to New York every day comes the stream of youth from all over our Nation. You can identify the boys and girls, newcomers, if you stand in Grand Central or Pennsylvania Station and watch their behavior as they step from the trains. They hesitate a moment, oblivious of the crowds, looking upward, gripping their bags and bundles, hearing New York, sensing it. They seldom go back. It's hard to find a native-born New Yorker in New York, but it's harder to find one anywhere else; and from this provincial stream, and from young immigrants who learned English in the slums, have come many men famous now as leaders in the annals of the great city.

In the galleries of the Chamber of Commerce of the State of New York, in Liberty Street, there is a group of portraits. Few people know it is there. You step in, to total darkness; turn a button and, by some ingenious simulation of coming dawn, a faint light, at first rosy, then growing whiter, illuminates the vast room; and there are Levi P. Morton, James J. Hill, John D Rockefeller, Cornelius N. Bliss, Andrew Carnegie, Joseph H. Choate, Moses Taylor, Albert Gallatin, Alexander Hamilton, Thomas Edison, Grover Cleveland, William E. Dodge, Morris K. Jesup, Irving T. Bush, A. Barton Hepburn, Darwin P. Kingsley, Seth Low, Eugene H. Outerbridge, Theodore A. Havemeyer, William B. Astor, Collis P. Huntington, Cornelius Vanderbilt, and more—a few only in the long list of strong

NEWSPAPERS FROM ALL PARTS OF THE WORLD
NEWSPAPERS FROM ALL PARTS OF THE W
N E W

Photograph by Ewing Galloway

GET YOUR HOME-TOWN PAPER!

Whether you hail from Melbourne or Milwaukee, Buenos Aires or Baltimore, here you find all the news about the folks back home. "Newspapers from Everywhere," on 42d Street near Sixth Avenue.

men whose minds have left their mark on New York and on the Nation.

To-day some of those who will inherit power work as ushers, megaphone men on Coney Island buses, brokers' clerks, reporters, real-estate salesmen, junior engineers, and newsboys. That is America.

WALL STREET IS THE POCKETBOOK OF THE WORLD

Nearly all nations have borrowed money or sold their bonds through Wall Street, which means New York's financial center. The reasons are known; they grew out of the World War. The fact proves what colossal credit is here.

In the Federal Reserve Bank alone is stored about one-twelfth of all the gold in the world. Its giant vaults run down five stories deep, far below the Hudson River level. I was permitted to turn a wheel which closed a 90-ton steel door on nearly $5,000,000,000 in gold and securities.

Inside, 20 rooms of gold, in coin and bullion; bars of gold from the Rand, from England, and the United States; gold in bags and gold bars in even rows, shelf on shelf, like books in a library; and giant scales to weigh heavy loads of gold, yet so delicately balanced that they tipped when I laid a bit of paper on them.

And in other banks, more than 200 of all kinds, more money, more securities, and scores of armored money vans with loopholes in their steel sides for guards to shoot through, moving here and there, all day long, hauling money, tons of it, used each day by stores, shops, and subways; yet 95 per cent of all our transactions are by check, which shows again the power of credit, which is mutual faith.

A $15,000,000 building goes up without one dollar of actual cash changing hands. In old days kings and rich men built only by paying in treasure; but New York builds with credit, as does all America.

Go to the Stock Exchange and look down from the gallery. Men run, push, and shout till noise echoes from the high ceilings. It sounds like Texas cowboys urging milling cattle into a loading pen. As if a cyclone had wrecked a paper mill

Photograph by Underwood & Underwood

FOR ITS SIZE, MODERN NEW YORK HAS FEW DISASTROUS FIRES

Fire-fighting efficiency, plus improved fireproof construction, keeps losses down. Nearly 7,000 men, including 29 deputy chiefs, 86 battalion chiefs, and hundreds of captains and lieutenants, compose its fire department of 354 companies. A fire in Greenwich Street.

torn scraps litter the floor. But confusion is more apparent than real. Actually, a system obtains and its phenomenon is credit.

"Five hundred steel at 185" is offered.

"Take it," says a broker; or maybe he only nods his head and makes a notation on a pad.

That is credit. On it is based all modern enterprise.

New York, center of credit, exerts a profound influence on the whole country. Though tons of gold are stored here, it is seldom used. Credit is the substitute.

We are familiar with trade, the interchange of goods from Maine to California; but the daily flow of money and intangible credit is often unnoticed, except by banks. Yet on this fact rests America's growth.

With credit, either from New York or from London and the Continent through New York, we built our first great railways.

To-day, for the newest Texas oil refinery, Montana smelter, or Milwaukee manufacturing plant, the credit comes in the end from New York, for here is the Nation's reservoir.

"WHO OWNS NEW YORK'S SKYSCRAPERS?"

"Who owns your new building?" I bantered a Manhattanite.

"Ten thousand people out in your Middle West," he said. "They bought our bonds through so-and-so."

It is so with foreign bonds sold here. A man in Iowa may own a lamp-post in Oslo or a rubber tree in Liberia as part of the property back of his overseas bond.

The Stock Exchange is the chief vehicle through which nation-wide distribution of ownership in industries, railroads, mines, oil fields, etc., is achieved.

Our great corporations, economists say, are no longer the lengthening shadow of one man. Wealth is more and more divided, as ownership of corporations passes from family groups to the general public. In one utility company now more than half a million Americans own shares. A steel concern belongs to about 120,000.

and the list runs on through railways and others. Many companies in New York, as elsewhere, urge employees to buy stock. Thus, much of the wealth represented by buildings and corporations with head offices here is owned by people all over the United States.

Stocks listed on the Exchange show how complex our life has grown: yeast, ginger ale, radio, roller bearings, banana boats, ice boxes, airplanes, television, talking, washing, and knitting machines; and the whole list, worth 65 or 70 billions, represents 15 per cent of all our national wealth.

It is the only market anywhere which by ticker gives a whole Nation the daily story of all prices on market transactions and the volume.

This ready marketability—the fact that holders of stocks listed here can sell them for cash any time, "at the market," is a chief function of the Exchange.

Who could write of New York and leave out Wall Street? Even childhood memories recall that now obsolete caricature of the big fat man in plug hat, with dollar-marks on his vest, who stood for the Wall Street trusts, the trusts that now belong in large part to "10,000 people out in your Middle West."

In the Wall Street section now are more great executive offices than anywhere else in America. This headquarters grouping of big concerns follows naturally, since here are located the largest banks, the important insurance companies, and the exchanges, the latter including not only the New York Stock Exchange, but the Cotton Exchange, the Coffee and Sugar Exchange, the Produce Exchange, the Mercantile Exchange, the New York Real Estate Securities Exchange, and various others.

NEW YORK'S APPETITE PUTS DISTANT REGIONS UNDER CULTIVATION

The wolf would be at New York's door were it not that man has found ways to preserve food. Refrigerator cars plus cold and dry storage in warehouses save the city from starvation.

Even at that, in many perishable things it is only a day or a week ahead of hunger. A general strike of transport workers would leave its situation critical.

Its chief food problem to-day is more and better terminal facilities and warehouses to handle its ever-increasing food stream.

New York, like every other great city, stands at a break in transportation lines. Here end the runs of ships from everywhere. In old days it was the Erie Canal which first brought food and goods from the interior. Then came the railways. Every important system in eastern United States now ends here, or its cars arrive over connecting lines. This puts all food-producing areas in the world, and particularly those of the United States, at the city's beck and call.

CITY'S CONSUMPTION FIXES IN PART THE FOOD PRICES FOR THE NATION

There is, practically, no such thing for New York as "fruits and vegetables in season." It can buy strawberries, ripe tomatoes, cucumbers, and green peas on New Year's Day.

Crossing Times Square at midnight, a hooded van passed me. From it came moaning sounds of cattle bawling.

"What's that?" I asked a friendly policeman.

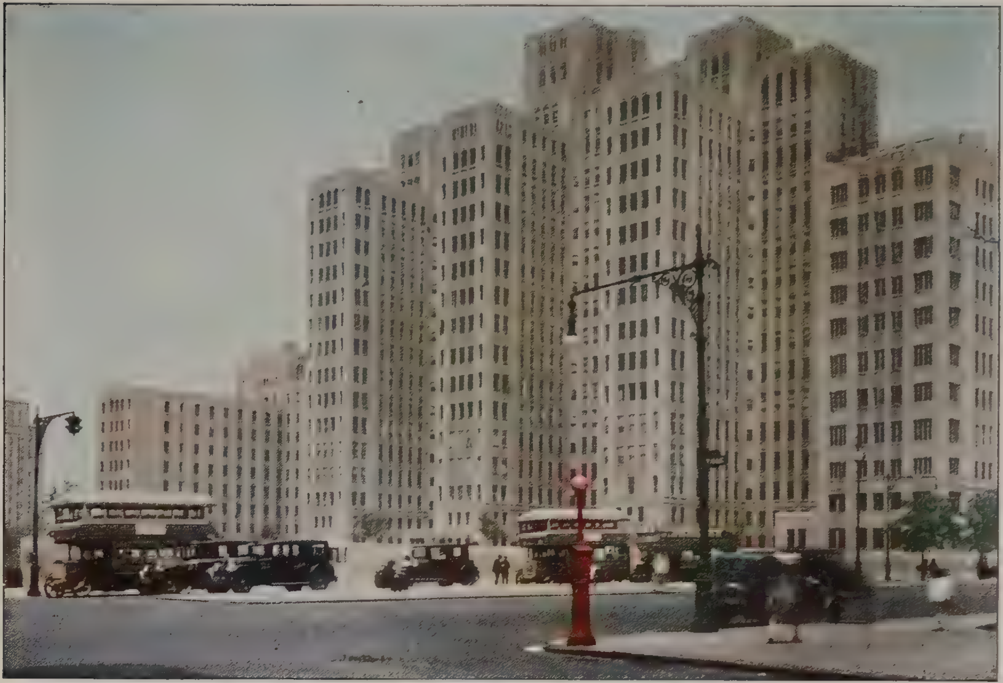
"Cows and calves for the kosher butcher," he said. "Over on the West Side they kill 'em every night, thousands of 'em, for the Jewish people. The Jews won't eat meat that's been killed longer than 72 hours."

The truth, thought of by few, is that New York is a huge market for live cattle, sheep, goats, and poultry because here lives the world's largest group of Jews. Chickens come from the Middle West by the trainload. You can see scores of cars parked in the yards over in Jersey. "Chicken Pullmans" they are called. The boy who rides them in, to feed and water the chickens, gets all the eggs laid on the way.

"I don't care how late the train gets in," said one of these hen porters.

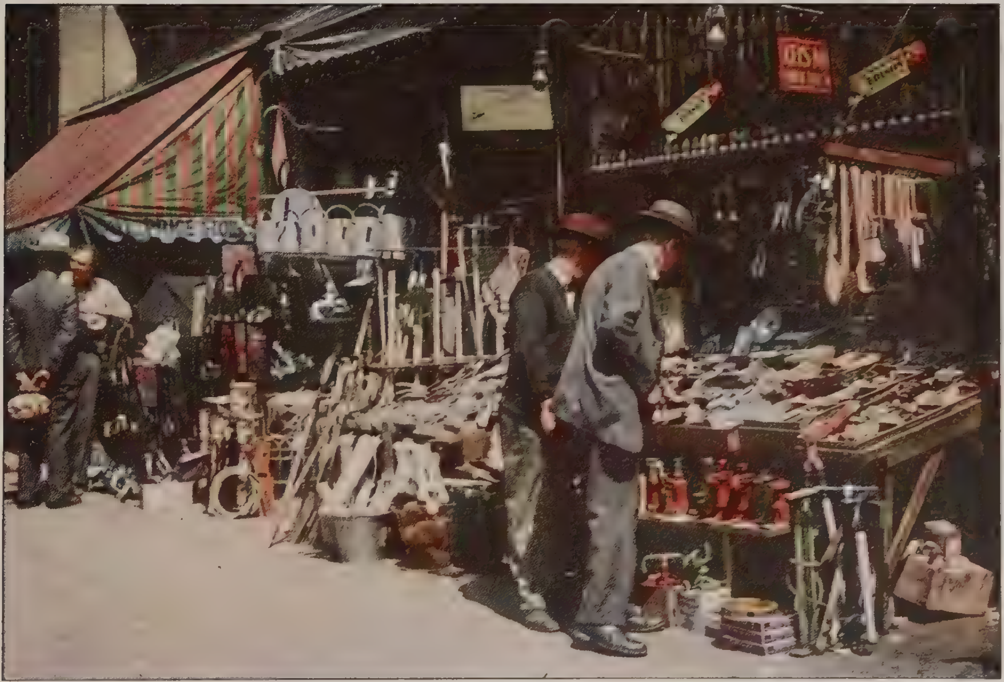
Food rhythm is unbroken. From Battery to Bronx, probably no free hen has laid and cackled for many a year; yet press a button any morning and eggs appear; also coffee, tea, milk; and white, rye, or whole-wheat bread; ham, jam, bacon, calves' liver, or what will you? Armies, not mobs, are back of this perfect organization. Men bewail the confusion of the city; in fact, confusion is slight, whereas order and routine are amazing.

Yet what prodigious piles of everything New York eats! So much that, literally,



THE MEDICAL CENTER ON WASHINGTON HEIGHTS

This impressive group of twelve buildings at West 168th Street and Broadway was erected by Columbia University and various sectarian organizations at a cost of $25,000,000.

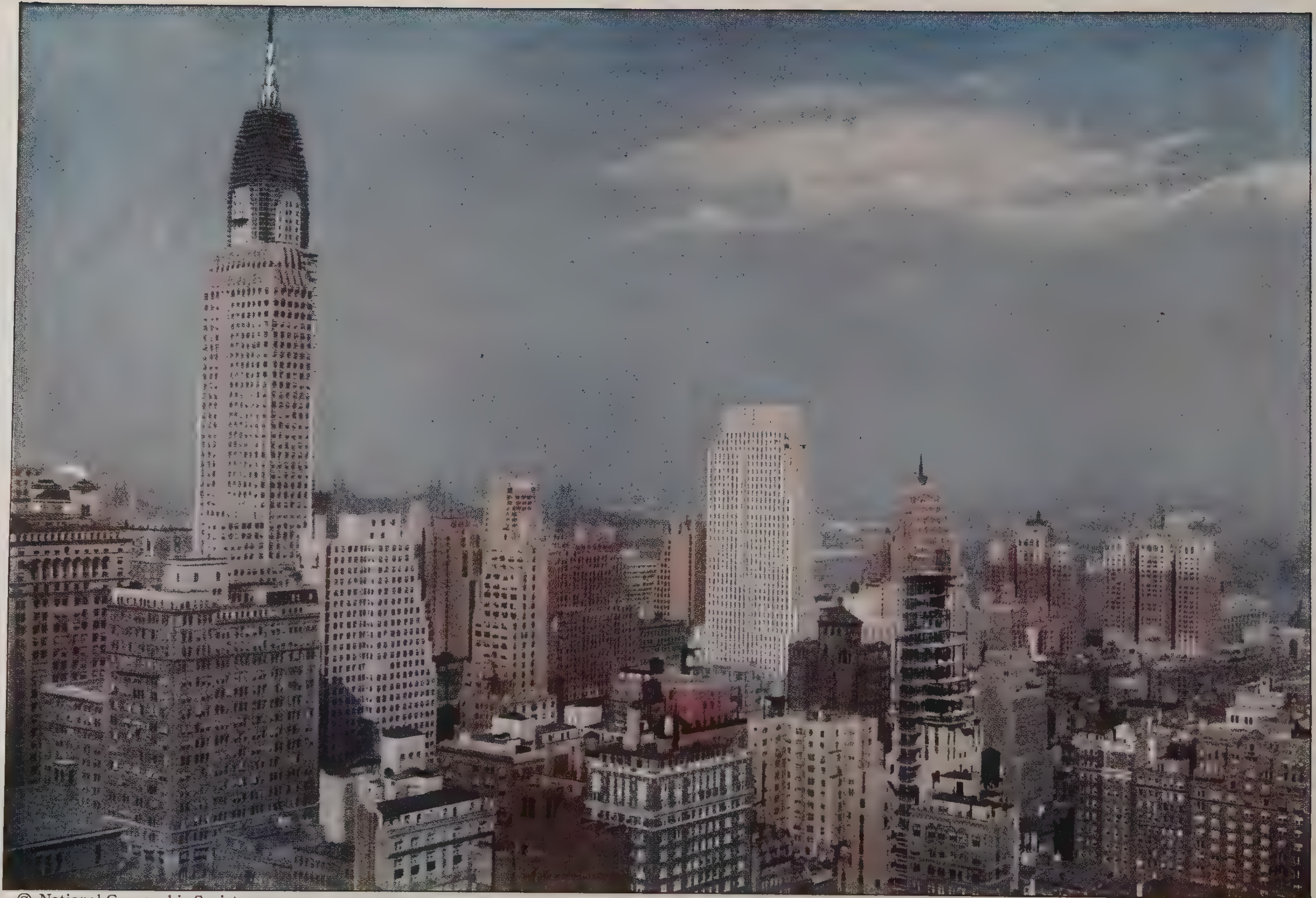


© National Geographic Society

Agfa Photographs

HARDWARE AL FRESCO TEMPTS THE HURRYING COMMUTER

There are many such sidewalk stores along the downtown streets between the office buildings, and the subway entrances and ferry landings, so that workers may buy necessaries quickly on their way home in the evenings.

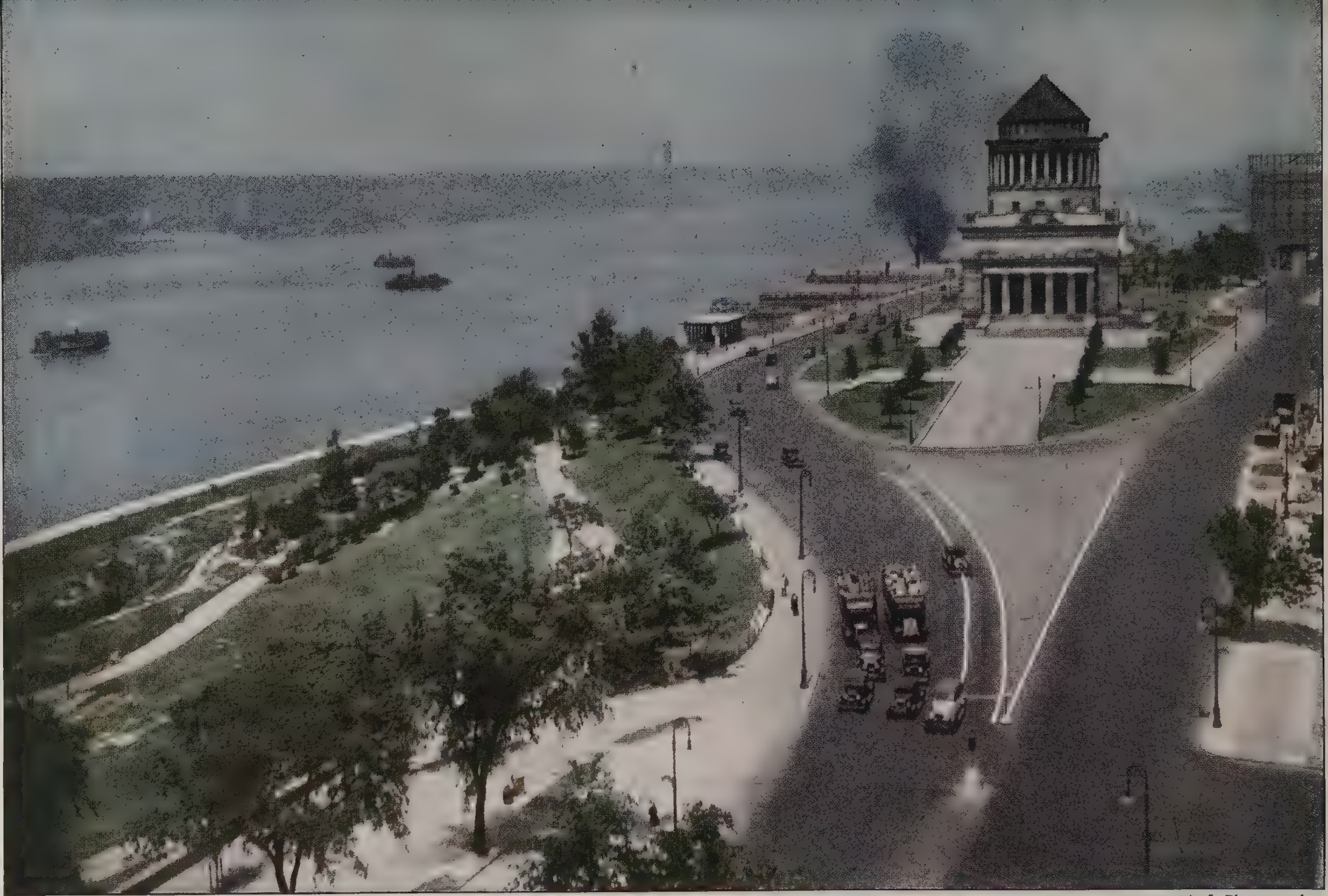


© National Geographic Society

Agfa Photograph

MANHATTAN'S SKYSCRAPERS DWARF THE "TOPLESS TOWERS OF ILIUM"

In this mass addition to the rapidly changing Grand Central zone is an image of to-morrow's world. The Chrysler Building, world's tallest, is at the left. Superimposed on its façade in this picture is the Chanin Building. The white structure is the new Daily News Building. To the right of it, along the East River, are apartment houses of Tudor City.

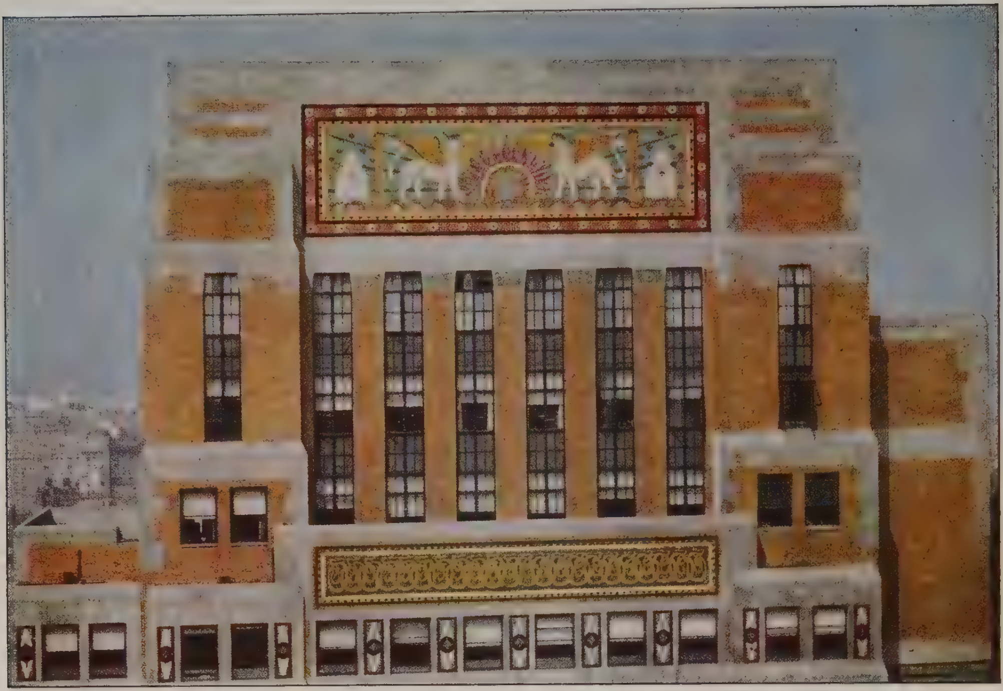


© National Geographic Society

Agfa Photograph

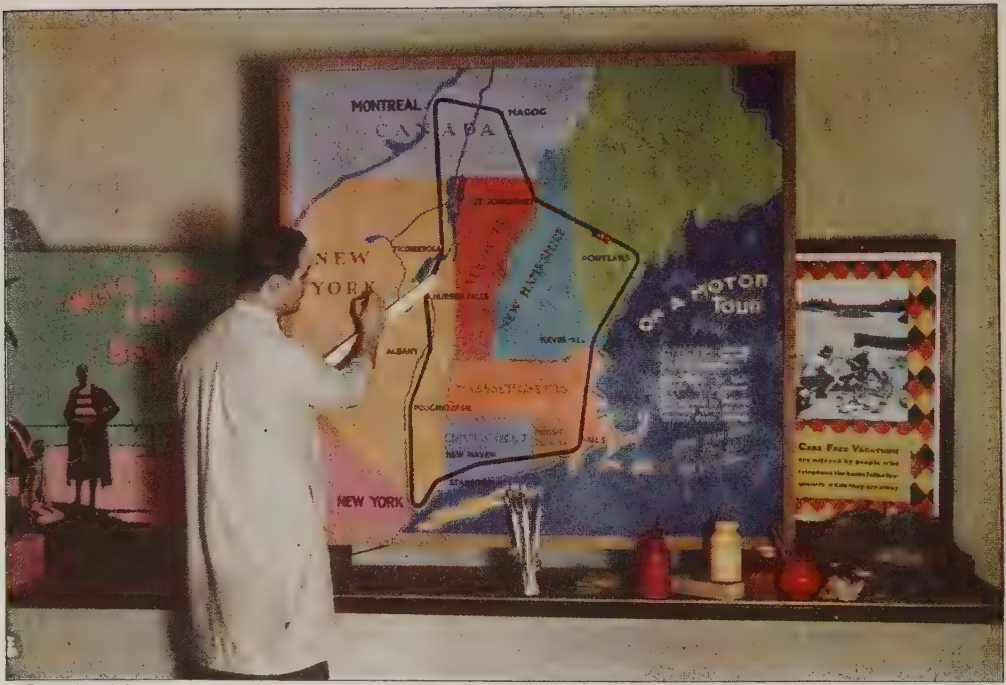
GRANT'S TOMB DOMINATES RIVERSIDE DRIVE

In a huge sarcophagus of Wisconsin red porphyry rests the body of the great Civil War general who became President. The stone of the tomb itself, dedicated in 1897, is of Maine granite. Beyond the tomb, partly concealed by trees, stands the Claremont, a structure dating from Revolutionary days. From it Viscount Courtney viewed the trial run of Fulton's first steamboat in 1807.



TILES THAT RECALL THE ORNATE WALLS OF BABYLON

To provide more light and air for its citizens New York's building code requires "set-backs" or terraces at certain heights on lofty structures (see Color Plates VI to X).

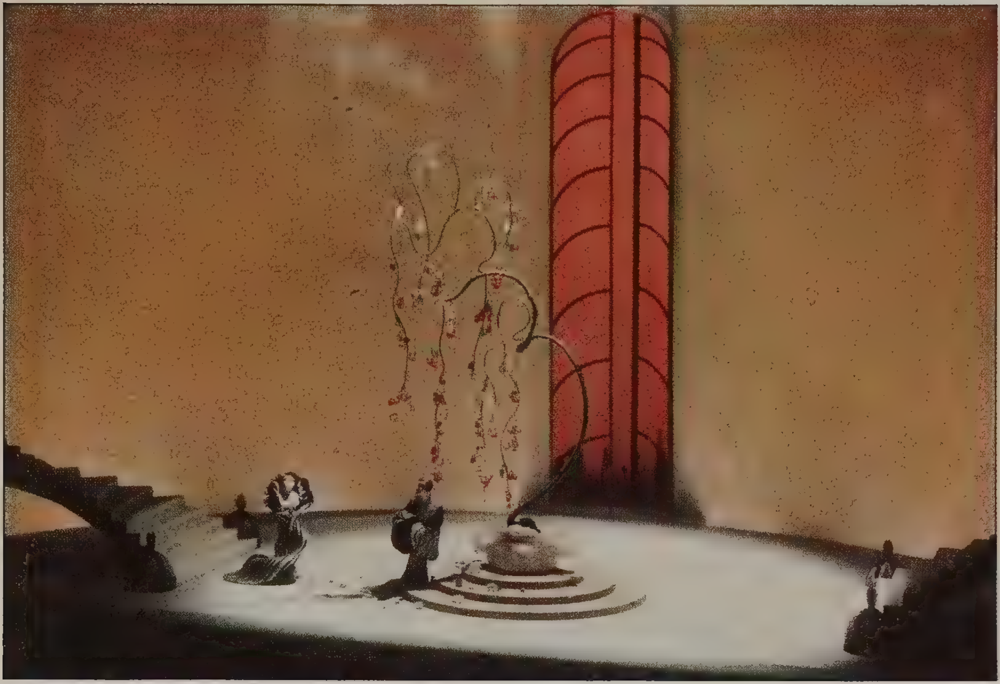

MONTREAL
MAGOG
CANADA
NEW YORK
TICONDEROGA
ALBANY
POUGHKEEPSIE
NEW HAVEN
NEW HAMPSHIRE
PORTLAND
NEW YORK
ON A MOTOR TOUR
Care Free Vacations

© National Geographic Society

Agfa Photographs

ART LENDS A HELPING HAND TO BUSINESS

A commercial artist in the studio of one of the large public service corporations putting the finishing touches on a colored window display.



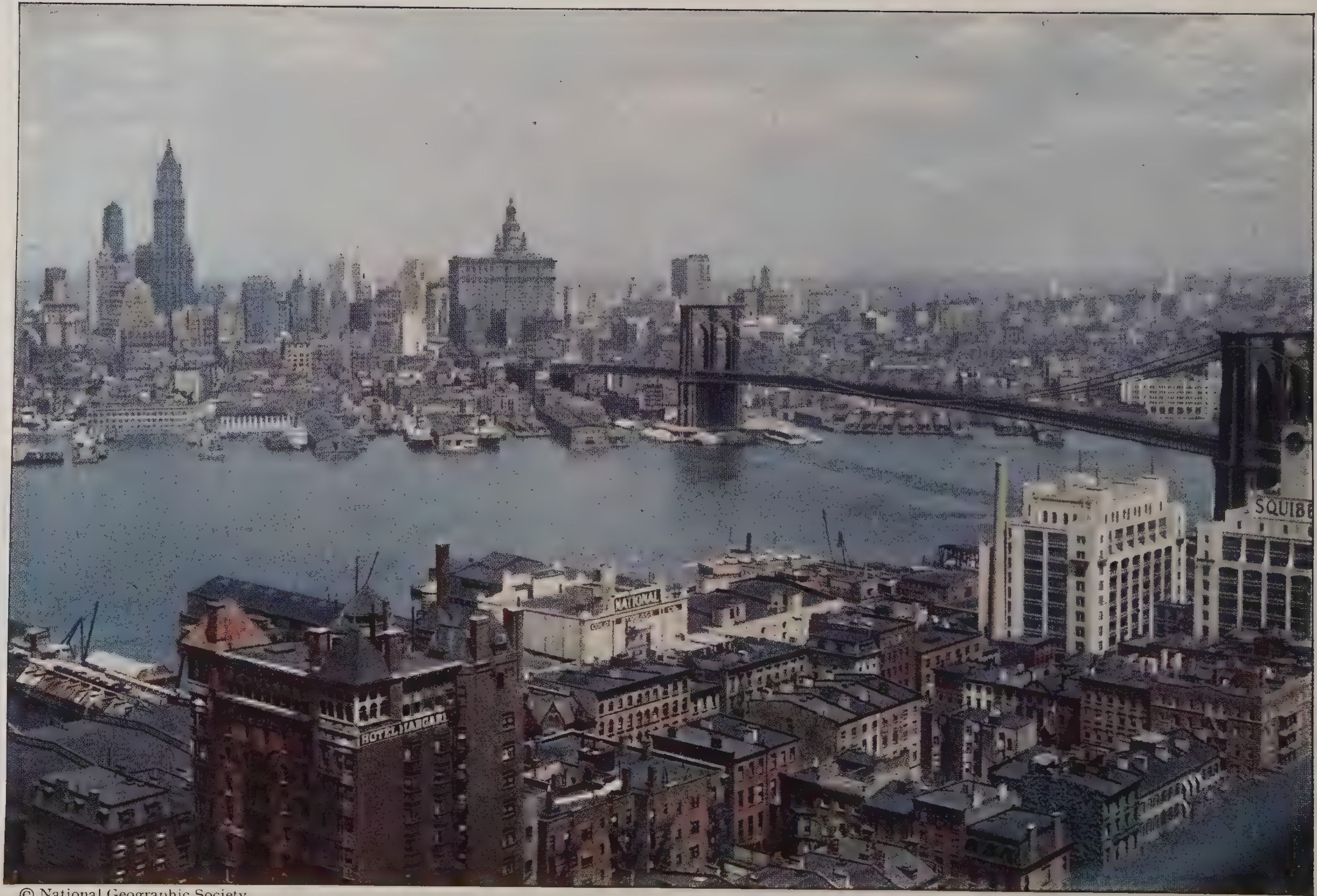
SUBTLE SUGGESTION AND SOPHISTICATED APPEAL ARE KEYNOTES OF MODERN ADVERTISING

"The Jewel Tree," one of the many unusual window displays along Fifth Avenue, is a creation of a well-known jeweler's firm.

© National Geographic Society Agfa Photographs

PAINTING IN OILS AT A "LIFE" CLASS

New York has some of the most popular private art schools in the world. In this school, near Columbus Circle, nearly two thousand students are enrolled.

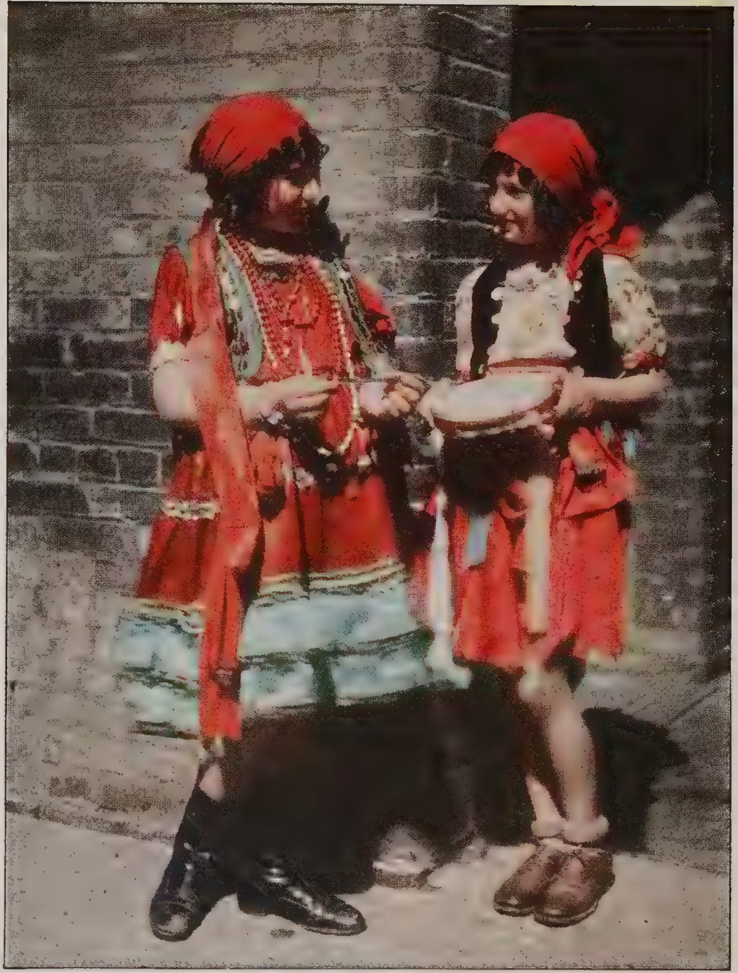


© National Geographic Society

Agfa Photograph

AS BROOKLYN SEES THE SKYLINE OF THE CITY HALL DISTRICT

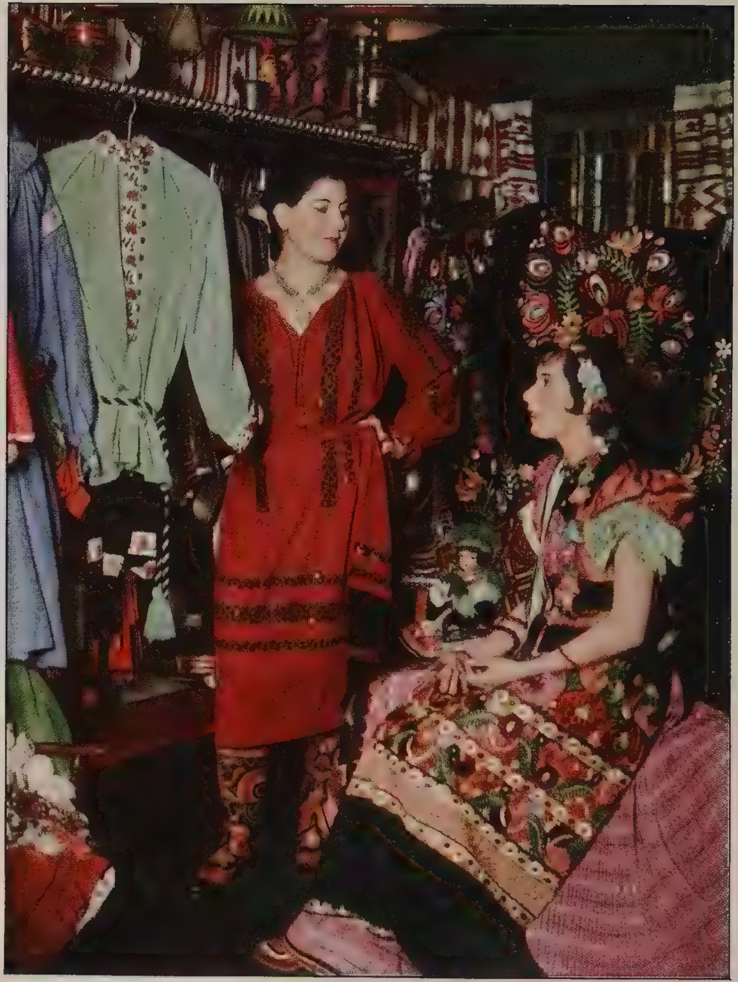
A magnificent view which embraces the Woolworth and the (left center) Municipal Building. Between them are many sudden additions to the ever changing skyline. To the right is the venerable Brooklyn Bridge, completed almost fifty years ago.



© National Geographic Society

READY FOR A COSTUME PARTY

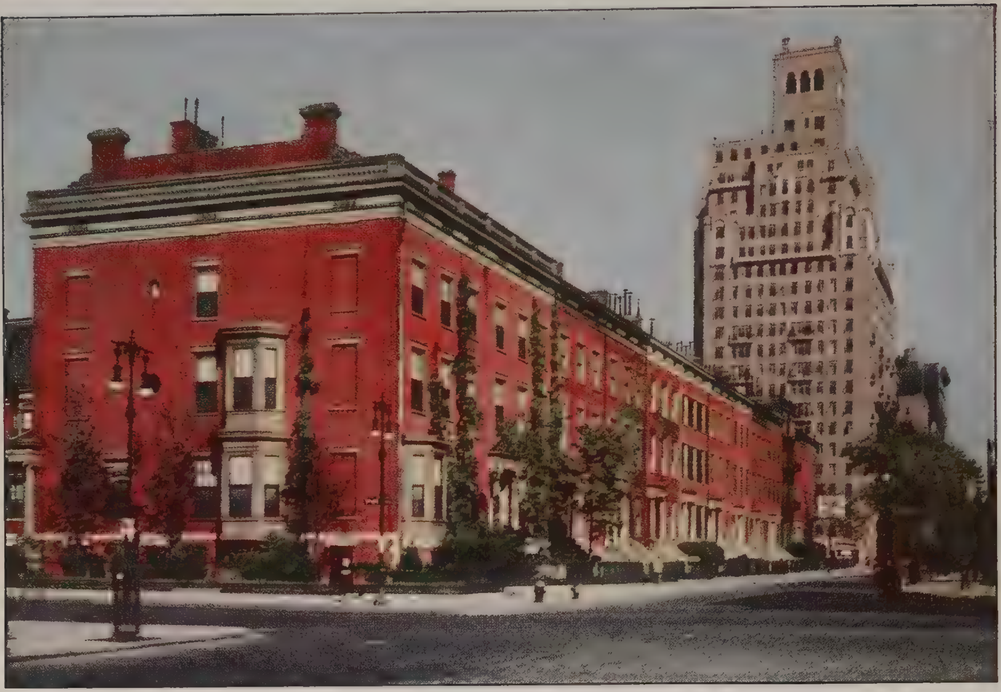
Two children from Public School No. 25, lower East Side, Manhattan, dressed as Hungarian gypsies—in all but shoes!



Agfa Photographs

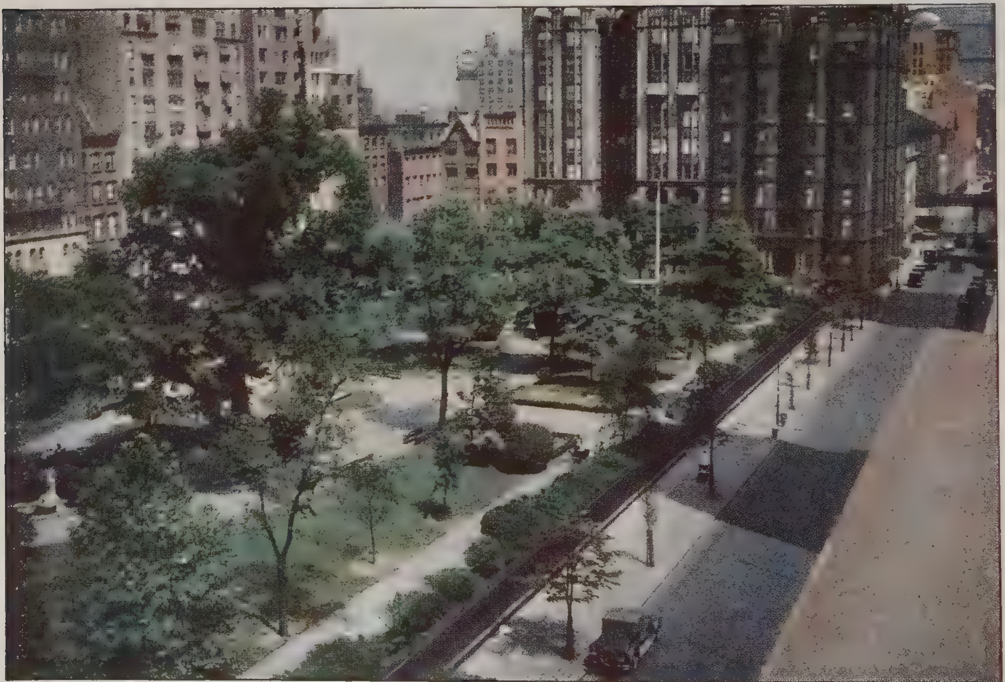
IN A GREENWICH VILLAGE SHOP

Many quaint costume shops about Washington Square provide outfits for masquerade, stage, and fancy dress parties.



THE OLD AND THE NEW ALONG WASHINGTON SQUARE

A fine row of ancient red brick mansions is among the last of a picturesque type now being displaced by the more economical apartment building, such as that shown in the background.



© National Geographic Society

Agfa Photographs

GRAMERCY IS A PRIVATE PARK

Gramercy Park was designated in 1831 by its owner as "an ornamental park for the advantage and pleasure of the owners of the sixty-six lots surrounding it." The gates are locked and only tenants of the surrounding buildings have keys.

it fixes the prices the whole Nation must pay for certain kinds of foods.

New York, with other cities, eats so much that, with the help now of long-distance refrigerator-car hauls and cold storage, it has enabled many far-distant land areas to come under cultivation. Florida, for example, for its groves and gardens, finds northern cities its chief market.

Experts say also that not only the cost of living, but the daily food of one-tenth of all the people in the United States, depends upon the efficiency of the New York food-distributing system. It becomes a national laboratory for the study of urban market problems.

W. P. Hedden, author of "How Great Cities Are Fed," told me that at a series of lectures at Columbia University on city marketing his audiences included a peach shipper from Georgia, an apple man from the State of Washington, farm agents from near-by States, professors from State agricultural schools, commission and retail merchants, a city market supervisor, a Government price reporter, buyers from restaurants, and instructors in civics and home economics.

Walk through Washington Market or along any lower Manhattan pier in early morning. There you grasp, even if vaguely, something of the prodigious quantities of food New York eats. This astonishing bulk and variety hint also at the year-round activities in our vast hinterland of farms, ranches, orchards, gardens; cattle, sheep, and hog pens, poultry yards and potato patches, where men toil and whence come the trains, trucks, and ships with their loads of food for New York. Much of the fruit comes from California, 3,000 miles away, and some from Chile and far-off South Africa as well.

"But how much food of all kinds does New York eat—it and its environs served by delivery wagons?"

Nobody knows exactly. Experts have estimated it at about 10,000,000,000 pounds a year. "How much is that?" you ask.

Well, 5,000,000 tons. Neither does that mean anything.

More, then, than is consumed each year by all the standing armies of the world.

Whatever it is, the farm acreage required to feed the city is staggering. Cheerful statisticians, fond of figures, say that New York drinks all the milk from 50,000 dairy farms, and that it would take two or three million acres to grow the grain for its bread. Estimates by the Port of New York Authority, from Department of Agriculture reports, indicate that last year the city consumed perishable foods in the following carload lots:

Fresh fruits and vegetables	220,308
Milk, cream, and condensed milk	148,318
Butter	10,433
Cheese	5,065
Eggs	17,825
Dressed poultry	8,100
Live poultry	11,945
Dressed meats	26,930
Live stock	62,331
Total	511,255

But, again, what do such vast figures mean? You cannot see the food pile for the figures.

EACH DAY THE CITY DRINKS THE FLOW OF AN ARTIFICIAL RIVER

Can you imagine a man nearly a mile tall, with a mouth a hundred feet wide? A man who could wade across Lake Superior, which is 1,000 feet deep, and get wet only up to his knees? Such a monster, drinking night and day, could just about consume New York's water supply. On a hot day the city uses one billion gallons. There are less than two billion people on earth; so that is more than half a gallon for every person.

Though Romans wrote their names in giant aqueduct masonry, among engineering feats of all time are few so stupendous as New York's water system.

From far up in the Catskill Mountains a tunnel, running beneath the Hudson's rocky bed near West Point, brings this subterranean stream to the city. So huge is this tunnel that a railway train could run through it. To blast and bore this incredible hole, to siphon one veritable river under another, took eleven years and cost the lives of scores of men.

"On account of past geological changes," an engineer told me, "and the wear of the rock by ice and river, we had to go down more than 1,150 feet below the surface of the Hudson to make a siphon. We had to dig deep enough so that the upward pressure of the water would be more than balanced by the weight of the rock above the tunnel. We didn't depend on the strength of the rock, but upon its weight.

top end of your pipe up into the air about twice as high as Brooklyn Bridge to keep the water from overflowing from it.

"You get a striking picture of how efficient this water service is when I tell you that we bring 40 buckets of water 150 miles, carry it up many flights of stairs, and deliver it at your kitchen faucet at a cost of only one cent! If a private company owned this system, people might have to pay three times as much. Our rates have not risen in nearly 60 years.

"In digging for dams and reservoirs up in the Catskills, the engineers found fossils of what probably represents some of the oldest forms of life on this continent. Some fern stems were two and three feet thick.

"Farms, towns, even graveyards, had to be sacrificed or moved, to get storage space in the Catskill slopes. Many once thriving communities are now under the waters of the artificial lakes.

Photograph by Ewing Galloway

WHERE PARK ROW MEETS THE BOWERY

Sunlight filters through the "L" upon a Bowery whose fame is gone. Only old-timers remember its halcyon days of dance halls, singing waiters, tattooed sailors, saloons, shooting galleries, and pinchbeck sporting life.

"It is 159 miles downhill from the Catskills to Staten Island. Flowing by gravity, the water in New York pipes is under such pressure that it rises high enough for most uses, but, of course, not for the skyscrapers. They have their own pressure systems. Then there's our special high-pressure fire system for parts of Manhattan. It carries special pipes because it also uses salt water. The electric-power people are under contract to run pumps for these special fire mains.

"If you sank a pipe into the water tunnel where it leads to Brooklyn, 700 feet underground, you would have to raise the

"Now, to give Brooklyn and Queens a substitute source of water, we are digging a new tunnel from a point about half a mile north of our city limits. It will bring water from new sources of supply in the east branches of the Delaware River. The contract for it is one of the largest ever let anywhere. When this new tunnel is done the city could fall back on it for water should the original Catskill tube ever fail; but since it was opened, in 1917, its giant flow has never stopped.

"We do not plan our water supply for any one dry year, but for a period of dry years.

Photograph by Ewing Galloway

FROM FAIRY TALES TO EINSTEIN'S THEORY, THIS LIBRARY SUITS EVERY MENTAL TASTE

From Ghetto, Broadway, and from exclusive Park Avenue comes a daily stream seeking romance, adventure, history, science, or just to relax. With more than 3,000,000 books and pamphlets, circulating in millions, here one of the world's largest free reading institutions faces Fifth Avenue between 40th and 42d Streets.

"Yes, odd incidents still happen. Between Brooklyn and Staten Island water is carried through a huge iron pipe which is sunk in the mud. Once a dredge broke this pipe. In making repairs our engineers used an *acetylene flame under water*. And there are the eels. Large ones apparently live in the mains far below the city. Lately we caught one at a pumping station, where it was drawn up; it was nearly four feet long and weighed 11 pounds. Another, not quite so big, choked a water tap and stopped the meter.

"'One of the biggest mining jobs ever done,' you might say of this water system. The great tunnel, so far down in the earth, had to be dynamited for miles and miles. What's down there now is a subterranean river, a man-made underground stream with flow enough to float a steamer or to cover this whole Manhattan Island with 30 feet of water every day."

After any considerable absence from New York, in these transient times, one sees it again only with Rip van Winkle eyes. It is no longer even a horizontal city; now its growth is skyward. "Where do things belong?" is the question the ever-shifting city seeks to answer.

MAN'S STRUGGLE TO WORK AND LIVE CHANGES THE MAP OF THE CITY

It grows so fast that trades and industries move about like kings and bishops on a chess-board. Many kinds of business have been crowded entirely out of lower New York by congestion and high rents.

No dancing schools could pay Wall Street rents any more than a sailors' home or a bowling alley could flourish in the better parts of Fifth Avenue. Always one type of use fights another, and that business wins which can use a certain area to most profit.

Like London, no one dreamed New York could grow so big. Nearly 250 years ago

Photograph by Ewing Galloway

THEY KNOW WHERE THEIR BREAD IS BUTTERED

Hungry Ghetto East Siders crowding about a curb lunch stand, where German "black" rye bread is sold by the slice. Butter is two cents extra. Many sales involve less than five cents.

one William Petty forecast the limits to London's growth. One force that would limit it, he said, was the distance which beef cattle could be driven in a day! Petty didn't dream that London would finally get frozen beef from Argentina, any more than early New York vineyardists could foresee 400 or 500 carloads of fresh California grapes arriving daily in autumn at the Erie Pier.

On your first plunge into the tumult that is New York, it does not make sense. Dynamic din, shouts, confusion; workers falling over each other, red-faced police hoarsely shouting in traffic jams; a baffling welter of paradoxes without rhyme or reason. "Nine million people eat, sleep, work, and play in the area," says the Regional Plan Survey's report. "But the assignment of the land to the various uses seems to the superficial observer to have been made by the Mad Hatter at Alice's tea party. Some of the poorest people live in conveniently located slums on high-priced land. On patrician Fifth Avenue, Tiffany and Woolworth, cheek by jowl, offer jewels and jimcracks from substantially identical sites. Childs's restaurants thrive and multiply where Delmonico's withered and died. A stone's throw from the Stock Exchange the air is filled with the aroma of roasting coffee; a few hundred feet from Times Square, with the stench of slaughter houses. . . ."

This Regional Plan group, financed by the Russell Sage Foundation, began some years ago a survey of the city. Its aim, among other things, is to see how crowds may be thinned out or moved faster and how more things may be "put where they belong."

NEW YORK FAMILIES ARE CONSTANTLY ON THE MOVE

The city, viewed as a metropolitan area, now flows over into three surrounding States, and this survey's fact-finding reveals strange physical diversities in the environs of New York. Contrasting with industrial spots like Newark and Jersey City, or thickly settled suburban residence areas, virgin open country also abounds, with wild deer seen in summer barely 35 miles from City Hall. And fading vil-

ARE HEAVY LADEN AND
I WILL GIVE YOU RE

Photograph by Ewing Galloway

THE POOR, NEW YORK HAS WITH IT ALWAYS

In great cities, even during good times, idle men are inevitable. That is an aspect of social maladjustment. Feeding the unemployed at the Beacon Light Mission, in Harlem.

lages, because of shifting traffic streams, have less than half the population they had 50 or 75 years ago.

In all New York, families are forever moving about. To find homes, workers crowded from the growing business regions move to Queens, the Bronx, Richmond, and the suburbs. On once empty areas in Brooklyn, as in Flatlands and Flatbush, residential sections have risen. Farms in Queens turn into colonies of homes. Parts of shallow Jamaica Bay are dredged, and filled-in land becomes high-priced building sites.

These same growing pains years ago started big department stores moving uptown.

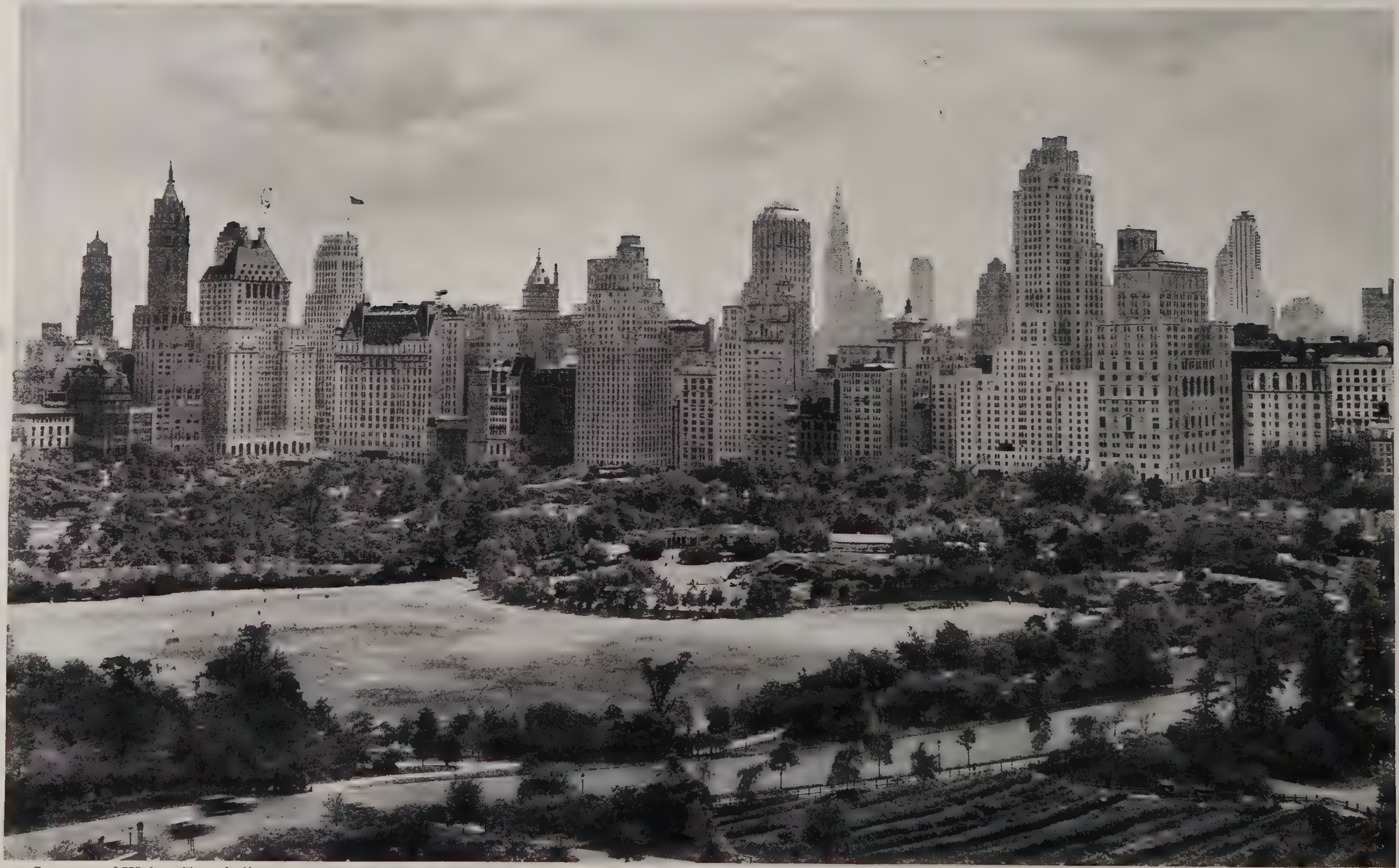
The city's northward march—from 14th to 23d Street, from there to 34th and 42d, and now on to 59th—is a familiar fact.

Rapidly, now, more giants rise among the six-story pygmies, and from once shabby regions there grow up swiftly new colonies of costly apartment houses, changing the social and financial complexion of a whole region, as about Tudor City, Gramercy Park, Brooklyn Heights, London Terrace, Sutton Place, and the regions on both sides of lower Fifth Avenue. Thus daily the pattern changes.

RAPID SHIFTS OF POPULATION ADD TO NEW YORK'S EVER-GROWING SCHOOL PROBLEM

When a pupil moves from one district to another, of course he can't take his school seat with him. In Lower Manhattan you may look down from skyscrapers and see school children at play, yet business in many districts tends to crowd out residents and thus force extra children into already crowded schools elsewhere.

The stupendous task which the city faces is revealed in a few striking comparative facts. The cost of schools alone in 1929 exceeded the total cost of all city government in Chicago, Boston, Detroit, Philadelphia, or St. Louis. It was more than the total cost of government in such countries as Belgium, Norway, and Switzerland.

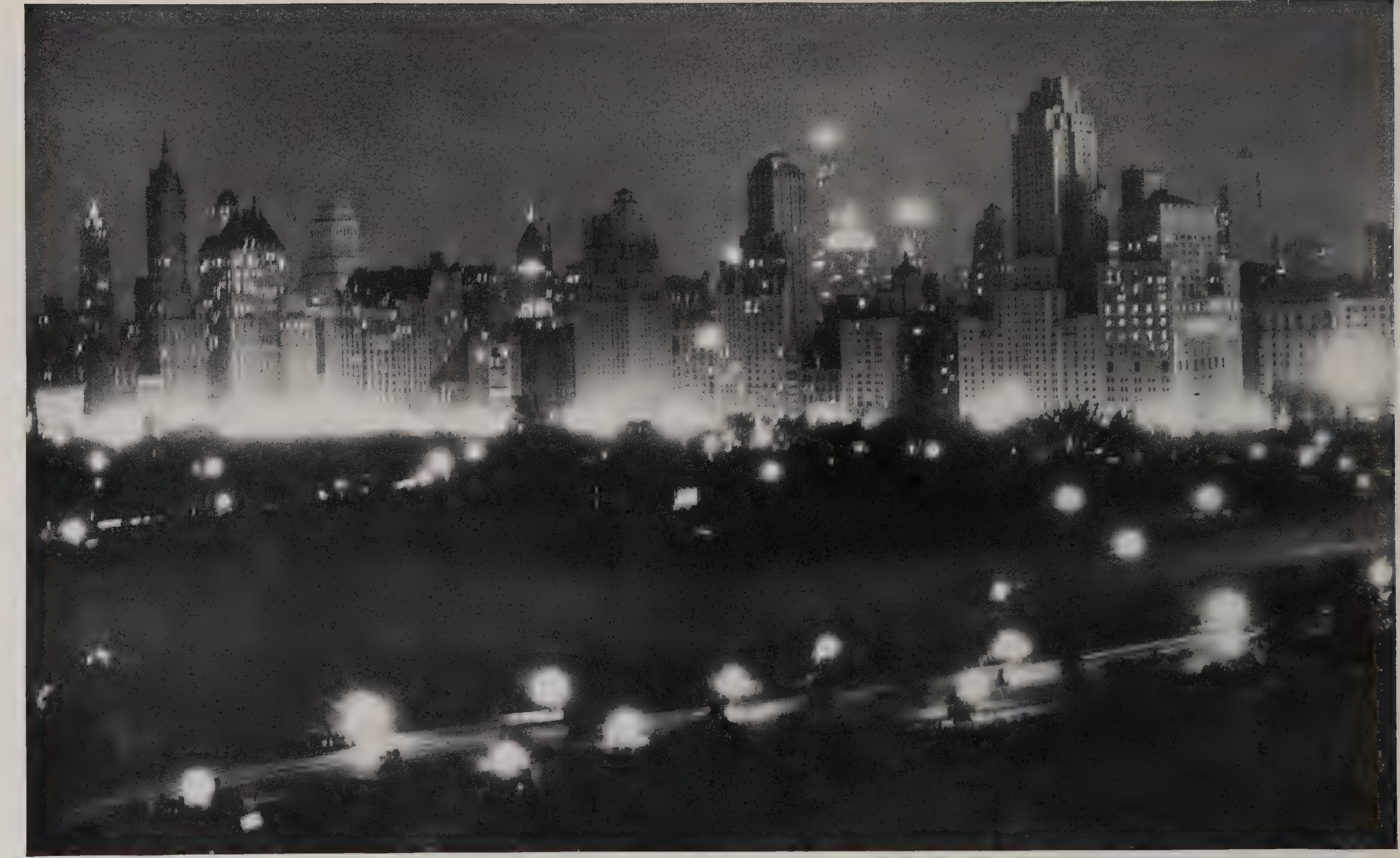


Courtesy of Walter Trumbull

Photograph by Orren R. Louden

WHERE CENTRAL PARK HALTS THE NORTHWARD MARCH OF ARCHITECTURAL GIANTS

Setting his camera at 67th Street and Central Park West, the photographer made this view looking southeast. On the succeeding page is the same scene photographed at night.



Courtesy of Walter Trumbull

Photograph by Orren R. Louden

LIKE BALLS OF ST. ELMO'S FIRE, CENTRAL PARK'S NIGHT LIGHTS DANCE AND TREMBLE

Beyond the park, etched in fire against nocturnal skies, rises the great city, illuminated like a sultan's palace on a gala night. See opposite page for this same scene photographed in daylight.

Now the rolls of day schools alone carry more than one million pupils of all classes. Demand for education grows very fast, since pupils, owing to American prosperity, are no longer content with eight years of elementary schools. In 1906, for example, only 38 out of every 1,000 pupils advanced to the high schools; in 1929, 143 out of every 1,000 were in the high schools.

This growth in high-school registration calls for more and more buildings to cope with "short-time" pupils. Better to equip its boys and girls for useful lives, the city expands and increases its technical high schools.

The Textile High School, for example, so practical in a city whose chief industry is the clothing trade, trains its pupils especially for work in that field. In the evening trade schools close contact is kept with the labor unions; apprenticeship classes are set up and run in coöperation with the unions and groups to which the pupils expect eventually to belong.

To keep children from traffic-crowded streets, the city also gives ever-increasing attention to indoor and outdoor playgrounds.

IF YOU STOOP TO STATISTICS

The story of New York is more than a catalogue of facts, yet even its many odd "Believe It or Nots" hold a fascinating significance of bigness.

Its telephones would string 35 lines from earth to moon.

It uses 50,000 horses, yet pays nearly a million taxi fares a day.

It starts 23 new buildings daily.

It burns 21 million tons of coal a year.

It has more than 1,580 churches and speaks scores of languages; has more than 130 hospitals and about 12,000 physicians and surgeons.

Printing its telephone directories alone constitutes one of the country's largest publishing industries.

It is the book-publishing center for two-thirds of all English-speaking people and the chief port of entry on this continent for books in all languages.

It uses enough new brick each year to build a wall 125 miles long, 60 feet high, and two feet thick.

An average of 5,000 watches are pawned every day and half a million people a year are arrested for one offense or another. In the police archives are the records of more than 20,000,000 arrests.

Hand in hand with the Travelers Aid, welfare, and philanthropic groups, its police help tens of thousands of waifs, runaway boys and girls, cripples, lost persons, and derelicts every year.

Also it has a new college especially for policemen.

To cover all its 5,000 miles or more of streets on a bicycle would take an old man—well, he simply couldn't do it at all. Somebody would run over him.

RISING LAND VALUES MAKE MANHATTAN THE GREATEST TREASURE ISLAND

In less than 20 minutes one New York building was sold at public auction for $3,375,000 cash. That could hardly happen anywhere else.

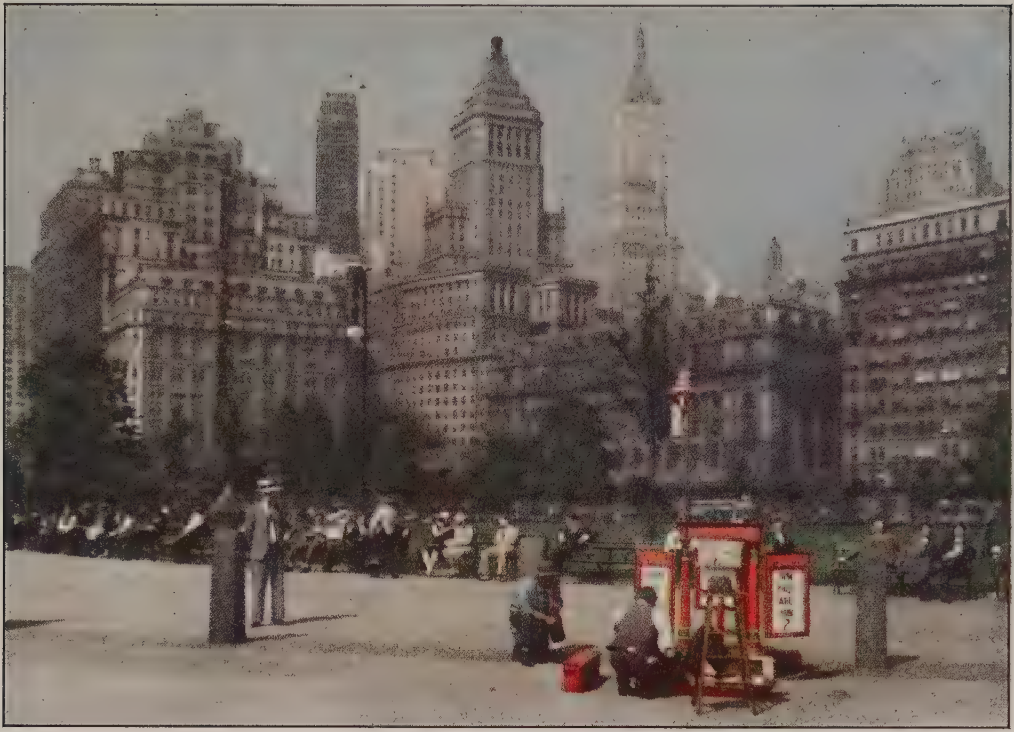
The same auctioneer, another day, sold more than six million dollars' worth of real estate in one afternoon.

Time has not yet scratched New York's face. It is young, as cities go. Even when Jenny Lind sang in Castle Garden, sea water, since filled in, stood between its island site and the Battery. When men dug foundations for the Whitehall Building they struck the timbers of an old ship—pirate, trader, or frigate—sunk in some forgotten creek.

Indians, Dutchmen, Walloons, Britons, Americans—all have seen the magic growth of this Treasure Island. To-day no one knows what it is worth; certainly more than a whole group of Western States. The assessed value of real estate in four of its five boroughs is about $18,000,000,000. But land values in Manhattan alone are now greater than for the whole city only nine years ago.

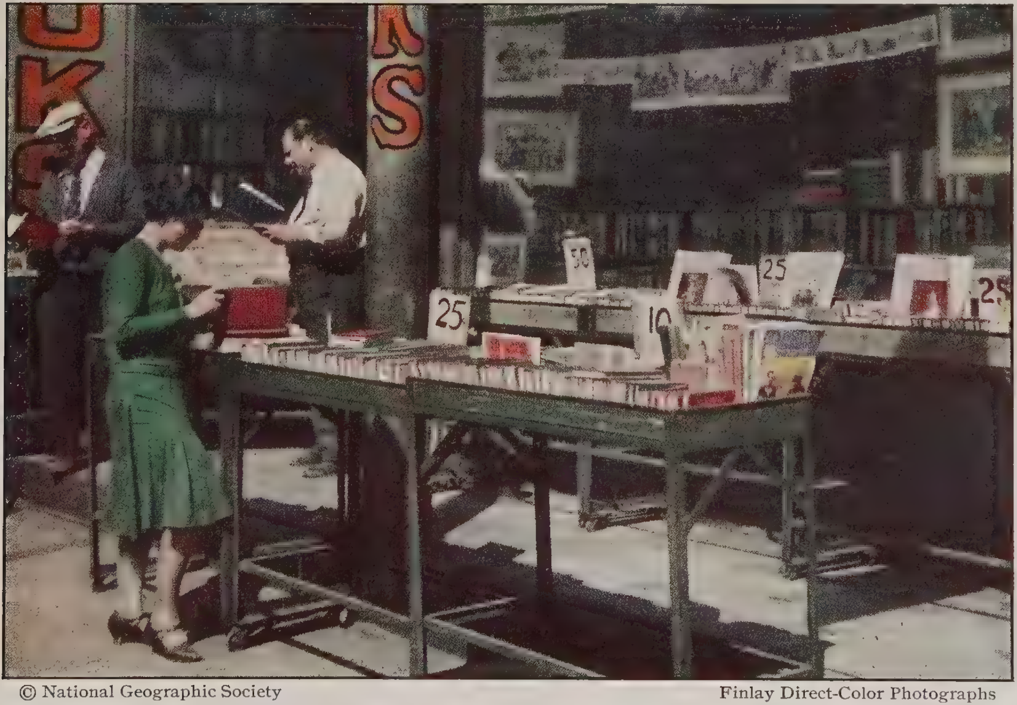
Incredible as it sounds, it is a fact that in the last two or three generations many land areas in New York have multiplied in value one hundred, two hundred, and even five hundred times. People yet living saw lots—whole farms along upper Fifth Avenue—sell for nominal sums. As late as 1845 a corner of Fifth Avenue and 42d Street sold for $1,400.

And there is the classic case of Number One Wall Street—a magic number that. What a psychological value for a bank! This site is commonly called "the most valuable piece of land on earth." In 300



THE BATTERY, WHERE BROADWAY BEGINS

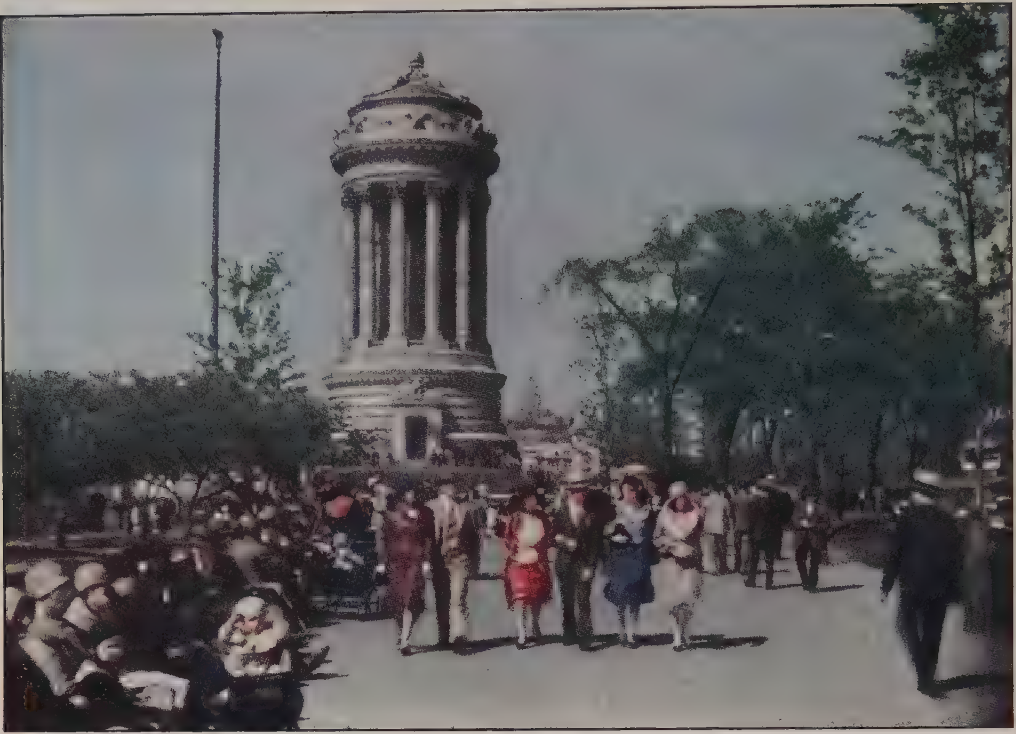
This tiny park is named for a battery which stood offshore in Revolutionary days. For decades it was the site of famous Castle Garden, first an amusement place and then used as an immigrant station until Ellis Island depot was built.



© National Geographic Society Finlay Direct-Color Photographs

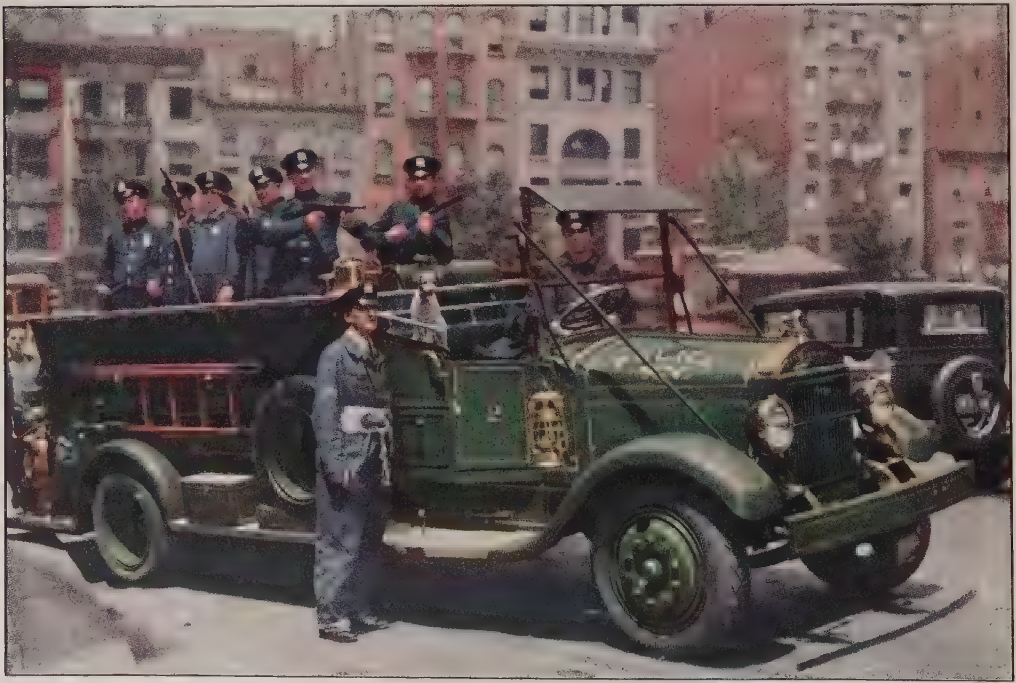
THE WISDOM OF THE AGES AT 10, 25, AND 50 CENTS

New Yorkers are omnivorous readers. Second-hand bookstores, such as this one in Greenwich Village, carry on a brisk trade in everything from Herodotus and Shakespeare to back copies of popular magazines.



RIVERSIDE DRIVE IS A FAVORITE PROMENADE

While Park Avenue is now a rival as a fashionable residential address, "the Drive" still attracts more strollers on a Sunday afternoon than does any other thoroughfare in the city. The Soldiers' and Sailors' monument above is one of the notable memorials along the Drive.

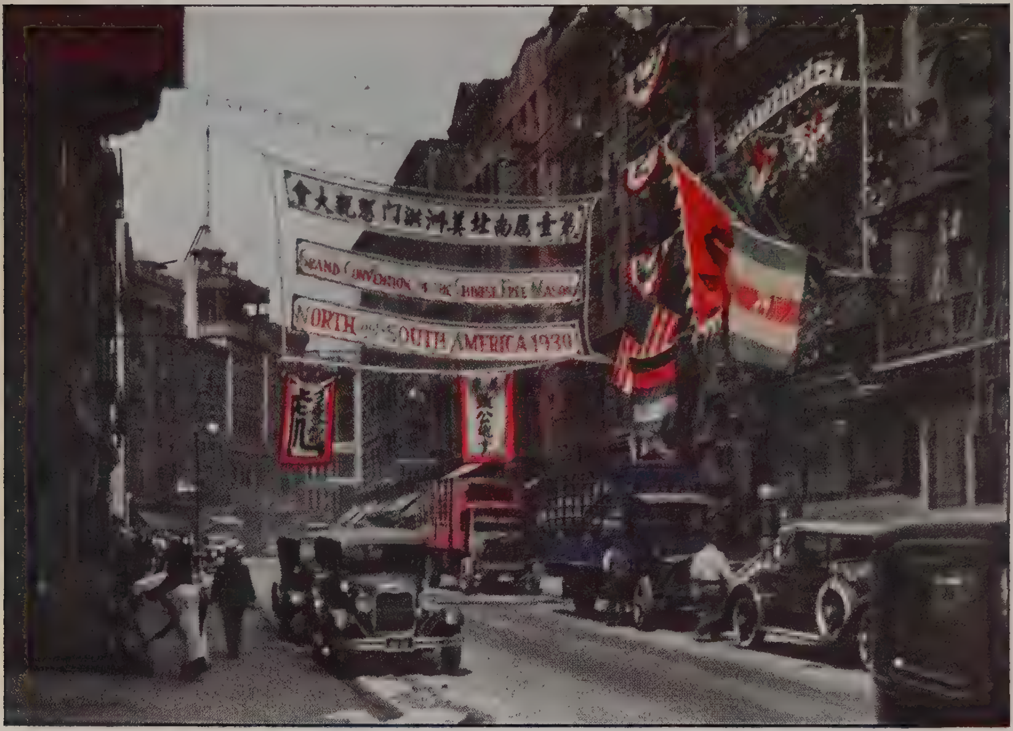


© National Geographic Society

Finlay Direct-Color Photographs

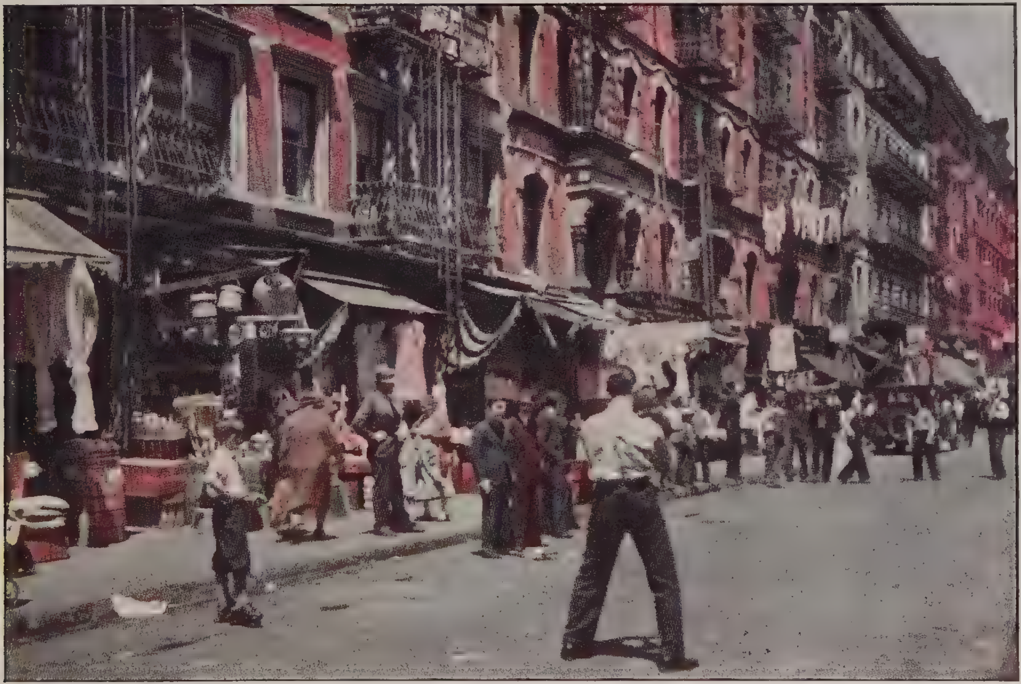
NEW YORK'S "FINEST" ARE READY FOR ANY EMERGENCY

One of the emergency trucks of the Metropolitan Police. This picked crew is equipped to cope with any situation, from running down a mad dog to subduing riots and mobs.


GRAND CONVENTION OF THE CHINESE FREE MASONS
NORTH AND SOUTH AMERICA 1930

A MODERN NOTE IN MANHATTAN'S CHINATOWN

The street sign, in Chinese and English, shows how East and West have met in this odd corner of New York's lower East Side. Many of the stores, joss houses and an old Chinese theatre are open to sight-seers, who come in buses at night to see the show prepared for them.

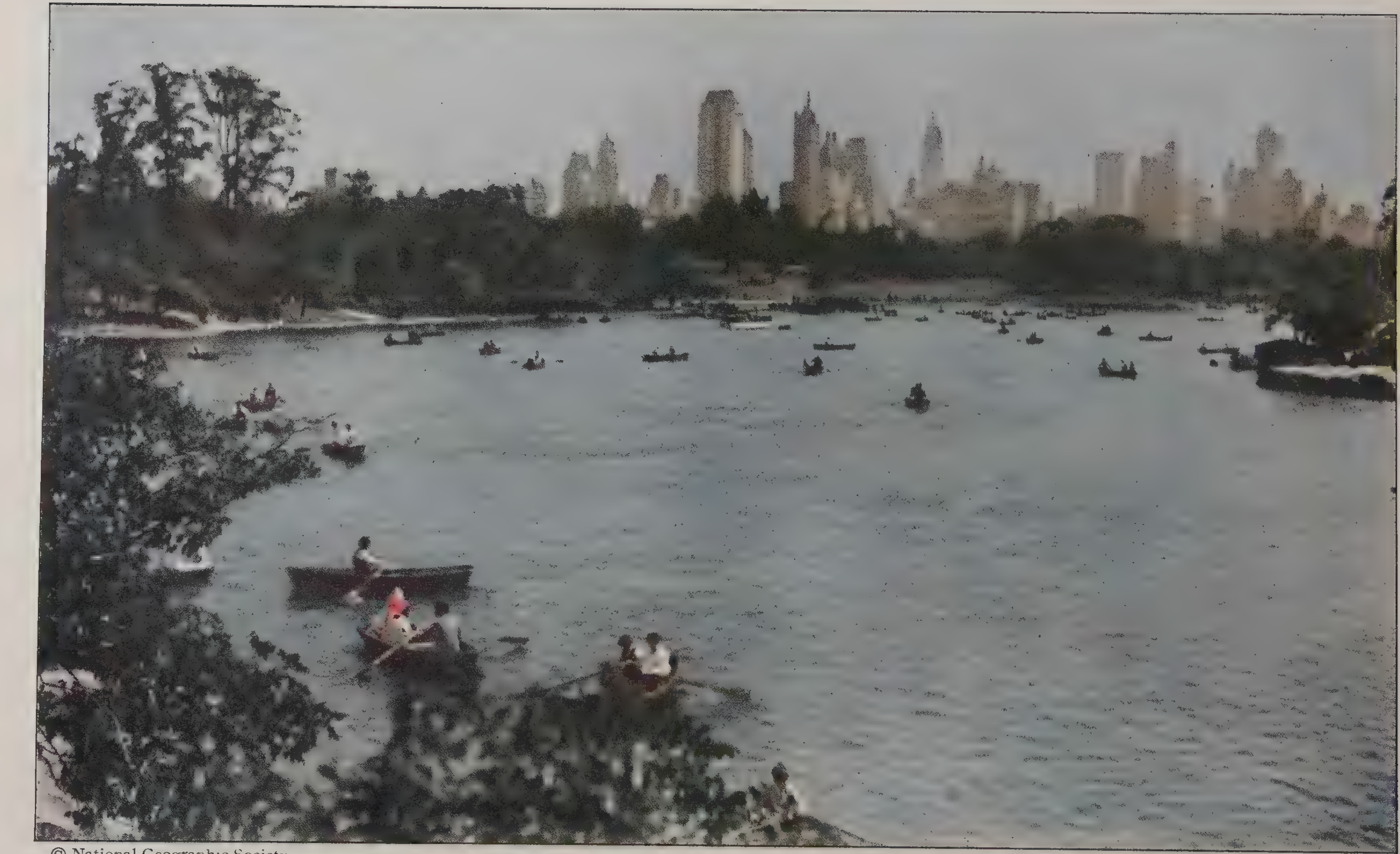


© National Geographic Society

Finlay Direct-Color Photographs

THE TEEMING TENEMENTS OF THE GHETTO

Along Orchard Street and other narrow thoroughfares of the lower East Side colonies of the foreign-born population live, work, and play.



© National Geographic Society

Finlay Direct-Color Photograph

MAN-MADE CRAGS RISE ABOVE CENTRAL PARK LAKE

Almost all the big skyrakers in the background have sprung into being since the World War. On summer Sunday mornings the boat lake in the southwest part of the park is crowded with city dwellers in search of a bit of the outdoors. In the winter months the city provides shelter houses for ice skaters.

ALWAYS
WARNER
FIRST NA
VITAPH
PRODUC
WARNERS

© National Geographic Society

NEW YORKERS CALL THIS "THE GRANDEST CANYON"

Broadway after dark, from 52d Street to Times Square, is an Arabian Nights' spectacle of dazzling white and colored lights.

Finlay Direct-Color Photographs

THE BATTERY WATERFRONT IN 1799

One of six great mural paintings by an American artist, to be seen in the main counting room of a Wall Street banking house.

WHERE NEW YORK'S TOWERS GO DOWN TO THE SEA

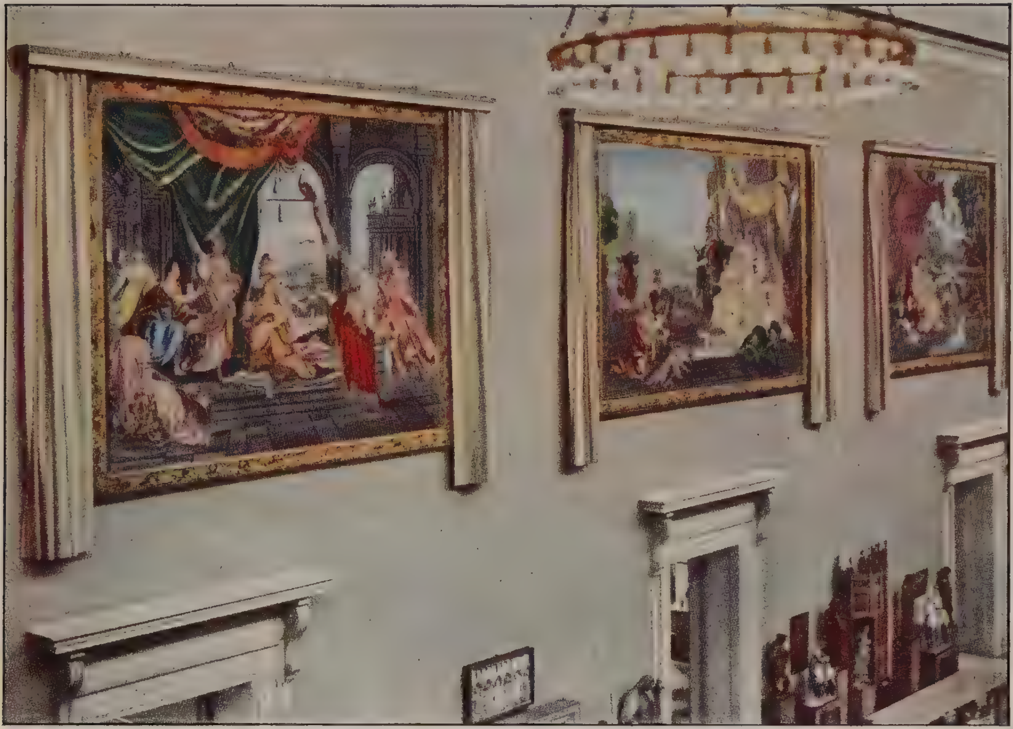
One of the wharves adjacent to the busy Fulton Fish Market, with Brobdingnagian buildings of the financial district in the background. Here the fishing fleets unload their catches.

© National Geographic Society

Finlay Direct-Color Photographs

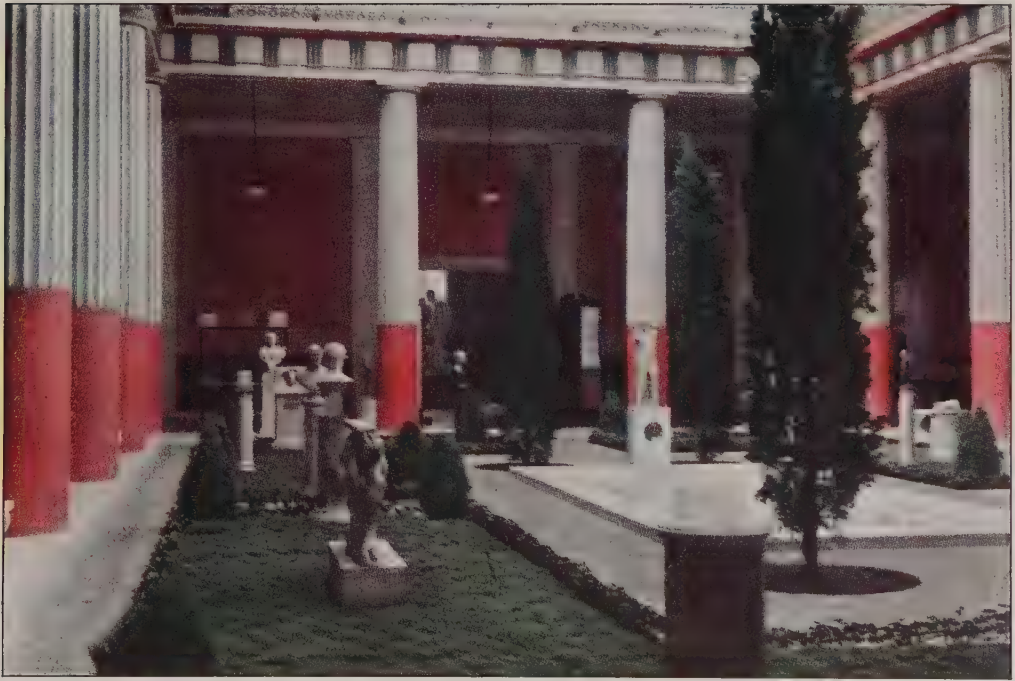
AN ARTIST'S STUDIO ON WASHINGTON SQUARE

Numerous men and women, famous in art and letters, have lived and worked in this section of the city.



SOME OF NEW YORK'S ART TREASURES

A part of two collections of tapestries, the Huntington and the Cole, in the main hall of the Morgan Wing of the Metropolitan Museum of Art.

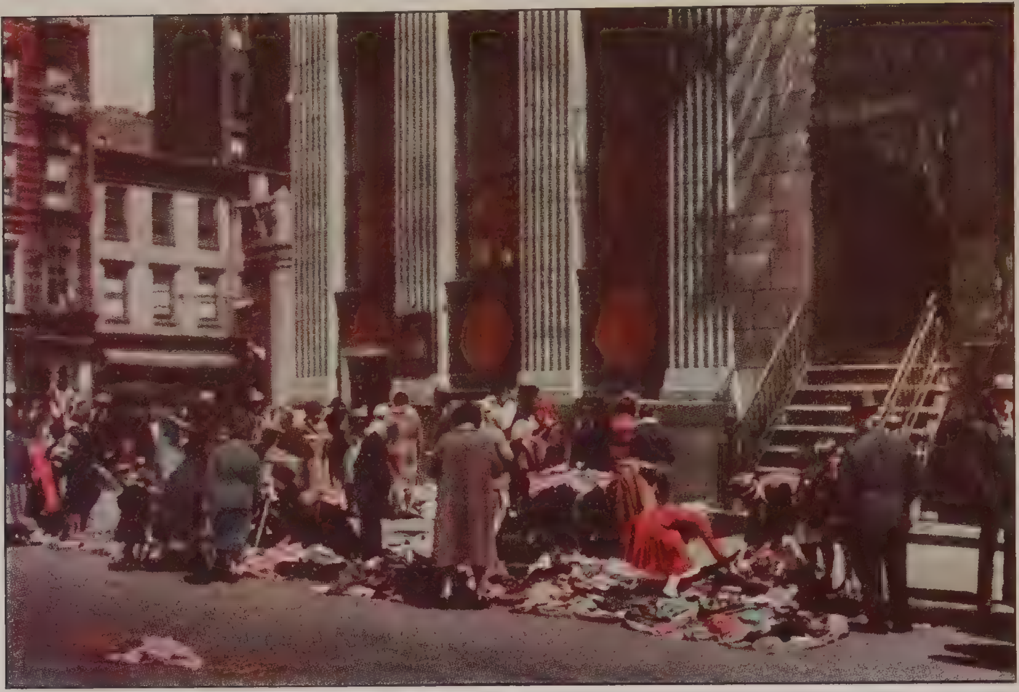


© National Geographic Society

Finlay Direct-Color Photographs

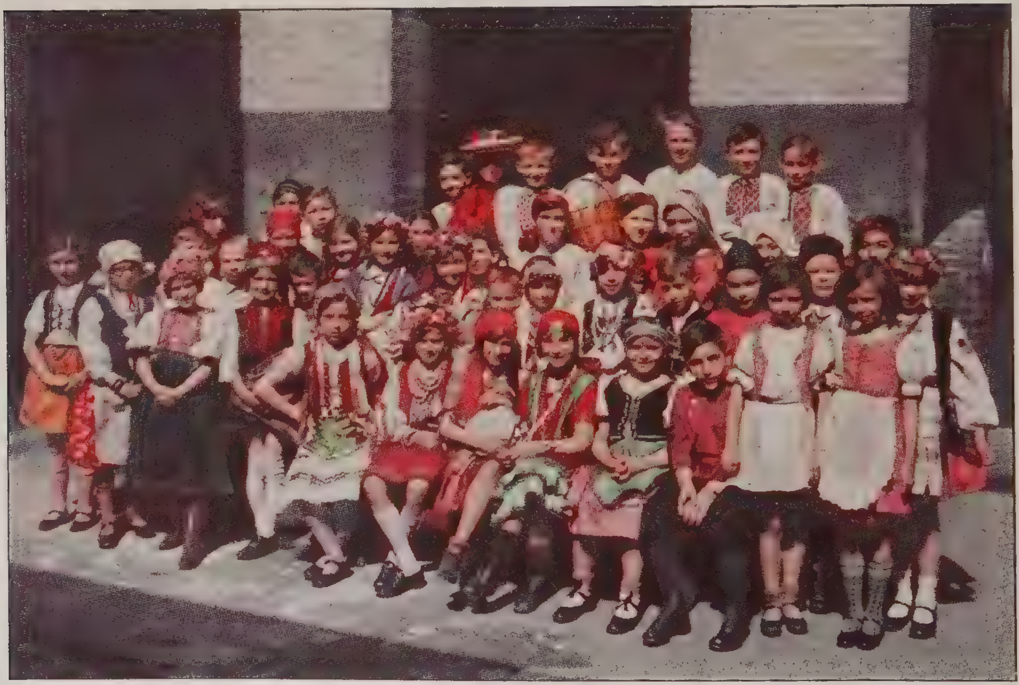
THE GRANDEUR THAT WAS ROME

A Roman Court and Garden in Wing K of the Metropolitan Museum of Art. The exhibit is composed of homogeneous elements from different sources.



THE SUNDAY CURB MARKET ON AVENUE C

For many blocks this pushcart and sidewalk market presents a kaleidoscopic spectacle of color and infinite variety, resembling similar markets in foreign cities.



© National Geographic Society

Finlay Direct-Color Photographs

MANHATTAN IS STILL THE MELTING POT

Into its polyglot public schools flock the children of all races. In this group alone may be seen Austrian, German, Italian, Dutch, Greek, Polish, Hungarian, Czechoslovak, Ukrainian, and Gypsy children wearing for a special occasion the native costumes of the lands of their origin.

years only three structures have stood here. The fourth, now going up, is the new 50-story home of the Irving Trust Company. Its foundations, dug far down into solid rock, will be five floors below the street level. Besides the use of every modern mechanical and protective device, its huge vaults will also be surrounded outside the cofferdamlike foundations *with a wall of water!*

Here one sees vividly how the struggle for space raises rents and the price of land. As a rule, rent is most influenced by the numbers of potential customers who walk past a certain site. It is proved that good retail stores and banks can pay higher rents than any other forms of business.

In Mid-Manhattan, you see many tiny shops selling flowers, tobacco, or even a low-priced item like fruit juice, which pay amazing rents. Mere nooks, worth only a few dollars a month in other parts of the city, rent here for fabulous sums.

But, of course, whether a tradesman can afford to rent a given space depends on what he sells. One estimate says that a small delicatessen shop on a crowded corner may get one customer from each 640 who pass, whereas a furrier gets one buyer only from every 20,000 pedestrians.

Land values go in waves, and there is recession at times, as at that period between obsolescence and replacement of buildings. But a glance at the tax rolls shows how the city, as a whole, multiplies its land values. Some of America's largest fortunes came by ever-rising Manhattan real estate.

SLUMS MAY GO, BUT THE POOR ARE WITH US ALWAYS

East Side slums, long notorious for poverty and congestion, are passing. By a late survey an average of one tenement in five was found vacant. The story of this change is interesting.

Into these slums for years poured a human tide from the ghettos of Europe. New arrivals, strangers in a strange land, stopped in New York and joined other groups of countrymen or relatives already here instead of going on to other American cities. Year by year, then, this influx added recruits to these foreign colonies. The newcomers, often without jobs long after arrival, were supported by the clan among whom they settled.

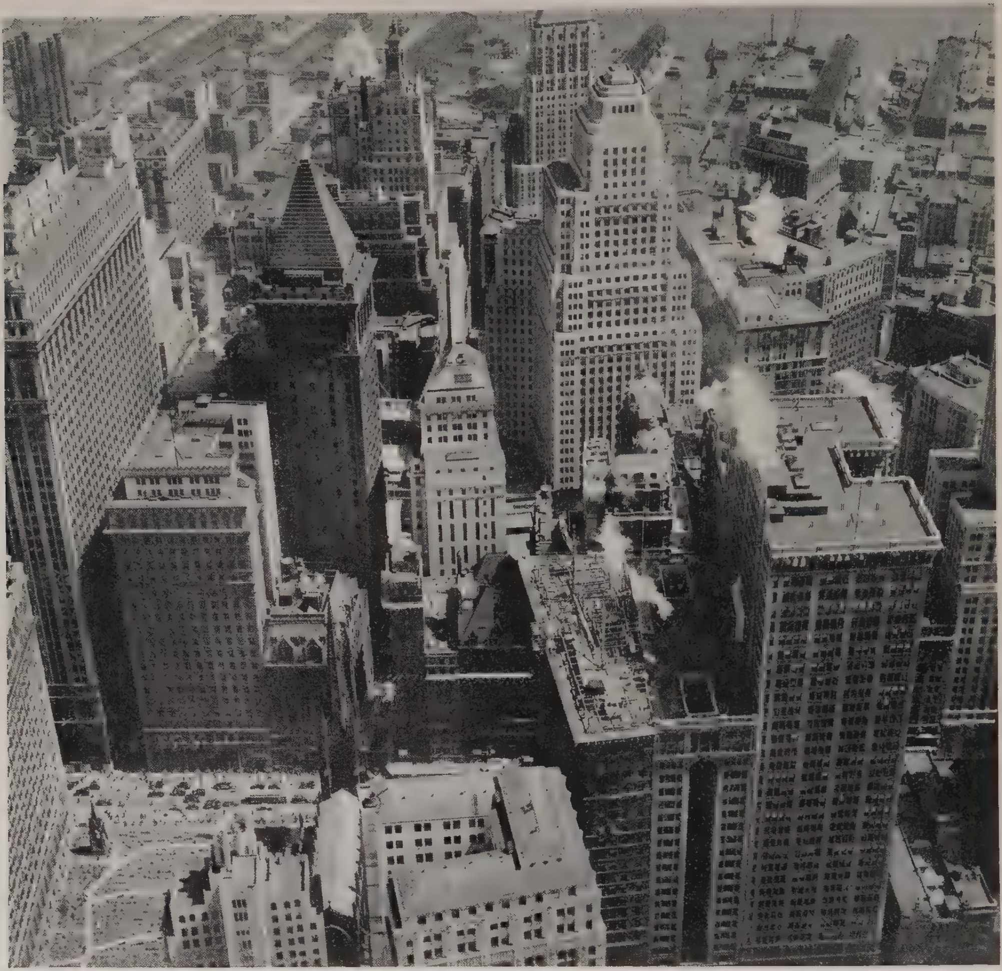
Then came immigrant-quota laws, cutting this stream to a trickle; also, with the World War, came highest wages and the longest period of prosperity America ever knew. So, even in the East Side, many men grew rich from the fur and clothing trades, from real estate and other operations. For the first time in its history, then, the East Side, with higher income and fewer dependents arriving from Europe, was able to get on its feet economically.

In the past ten years many of its once poor, crowded tenants have quit its squalor, moving to Brooklyn, Queens, and other better places. Even more would have gone, too, but for happy changes in the district itself. Rents there are still low, but dark inside rooms are no more; remodeled tenements are the rule now, with baths, fancy wall paper, plenty of light, and more playgrounds and schools for children. Streets are widened; parks appear; fancy stores, with bright plate-glass fronts, where once stood the odoriferous herring shop. There are many movies, too, and even night clubs and neighborhood theaters, with programs in Yiddish, Italian, and Greek mixed with English. I heard an Italian mother in Mulberry Street correct her children in Italian for being too noisy; whereupon they replied in English!

Shiny new automobiles, belonging to East Siders, honk arrogantly at bearded old Talmudists pushing their apple carts hastily out of the way—out of the way of the man in the new motor car who not long ago pushed a cart himself. In that incident is the story of the changing East Side.

Walking down some streets, as along parts of Houston, you may still have to dodge when garbage is dumped from windows overhead. Grand as a kaiser's palace is the grill and marble of police headquarters; but across Broome Street family wash flaps from fire-escapes, and a block off in Mulberry children on roller skates play tag among tiers of caskets on the ground floor of an undertaker's place; a woman breaks up an old wooden bedstead for kindling and an aged, shabby man, pushing worn shoes along a wet pavement, hesitates and eyes furtively an open garbage can.

Poor there are, of course, and ever will be, as it is written; but New York is not unkind.



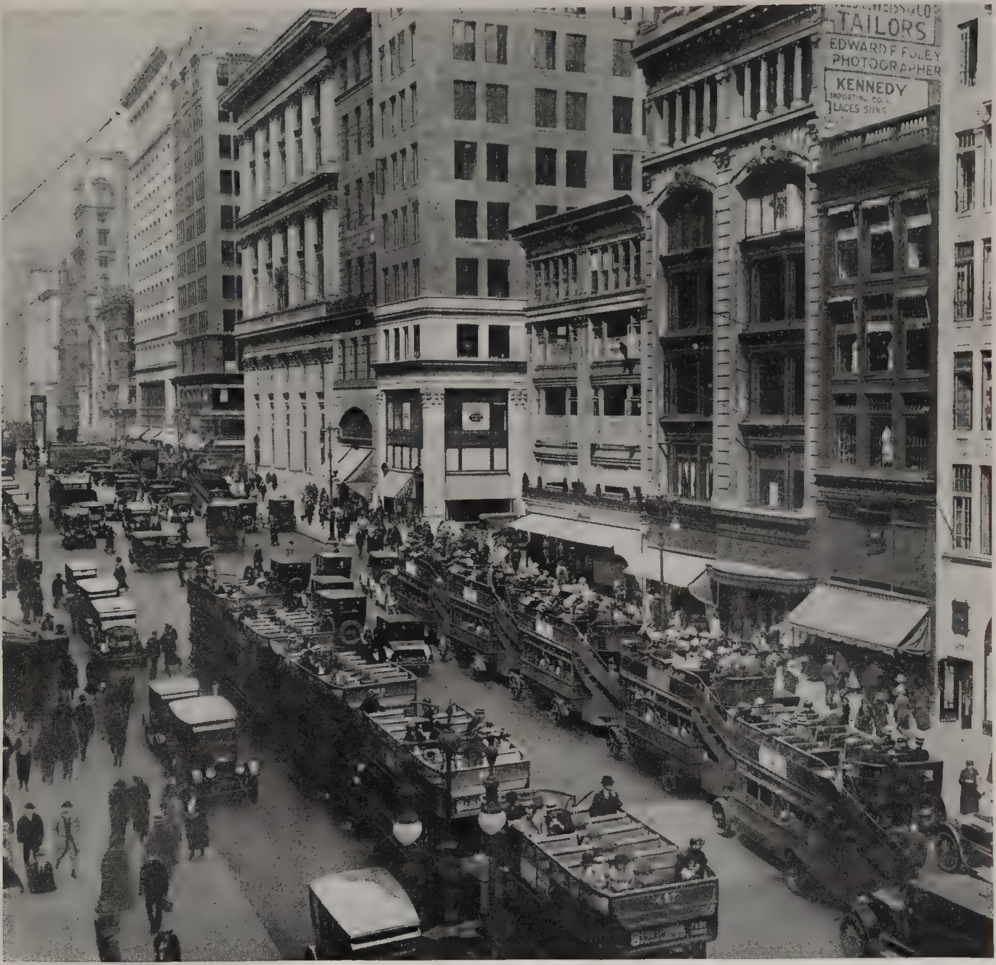
Photograph by Fairchild Aërial Surveys, Inc.

MAJESTIC TEMPLES OF MAMMON BROOD OVER LOWER MANHATTAN

In the left foreground stands old Trinity Church, with its weatherbeaten headstones and benchlike tombs farther to the left, where clerks and stenographers sit at lunch time. Here rests Alexander Hamilton, pioneer financial genius. Wall Street leads off, from near the church, and all about are great banks and the steel and marble homes of world-famous oil, copper, and other giant industrial corporations.

"The inexorable march of the employment rule," said a city official, "which has relegated men over forty to the human scrap heap, and other industrial conditions, operate to increase the number of unemployed. These, mostly worthy folk, find themselves wards of the city. A line of 158,677, extending over the past year, or an average of 434 a day, has stood before the Municipal Lodging House, grim and needy exhibits in *Humanity's case against the age of speed.*"

The blind, the aged, the misfits, and the helpless—the city aids them all. The same hand that welcomes visiting royalty reaches out to rescue the foundling. An army of nearly 50,000 children is now fed, clothed, sheltered, and doctored by the city. Those wholly dependent are cared for by the Department of Public Welfare; those who have lost their fathers, but who may still find homes with their working mothers, are aided by the Board of Child Welfare. This latter agency is the means of keeping thousands of needy children in their own homes, children who would otherwise be committed to institutions as public charges. It grants aid to needy



Photograph by Wide World

RIDING UP FIFTH AVENUE ON A BUS TOP IS A SIGHT-SEER'S INCOMPARABLE ADVENTURE—FOR TEN CENTS

widows, as well as to the wives of men in asylums, hospitals, or prisons; but, above all, its Juvenile Employment Bureau gives vocational guidance to boys and girls just leaving school and aids them in finding suitable jobs.

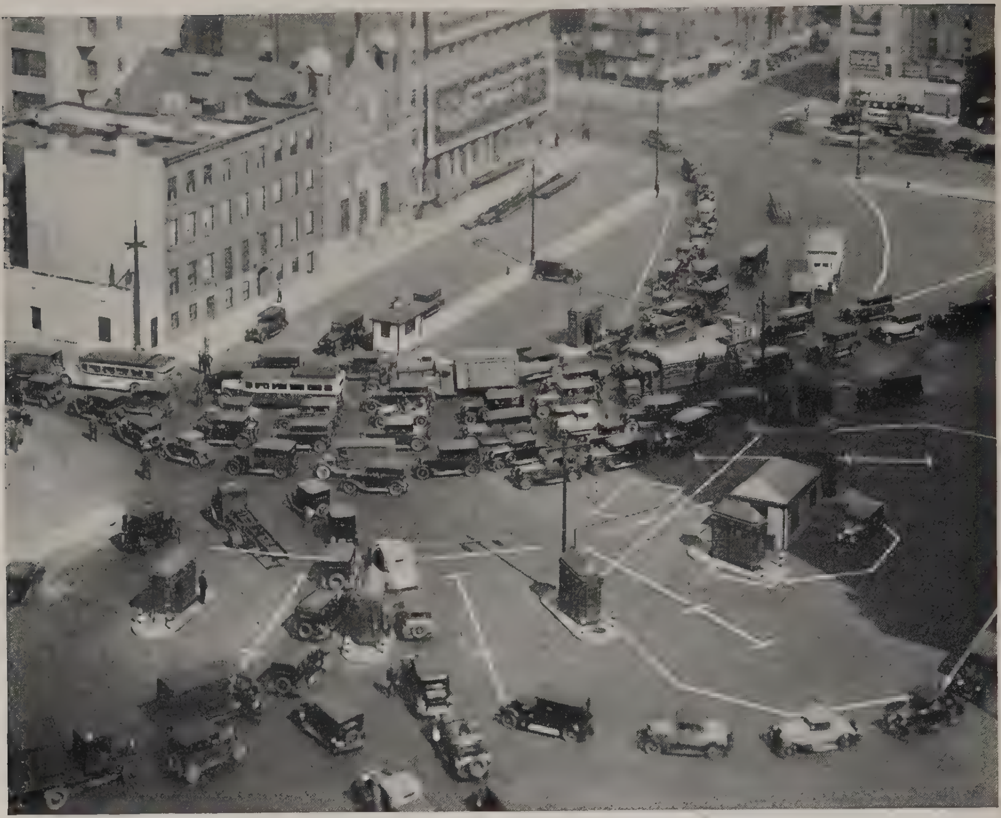
THE VOICE OF THE CITY IS NEVER HUSHED

Man's machines make the streets loud. They get louder as the machines multiply. City noise reminds you that every invention is aimed at increasing man's natural powers: the telephone, that he may speak and hear farther; the electric light, that he may see better; gas, steam, and electric power, that he may apply more strength to work and move faster. Even the wheel is merely more legs, its many spoke ends making multiple feet.

Here, this roar becomes a cosmic din—almost an earth tone—incessant as the swish of tides and wind. It may keep visitors awake, but the old New Yorker doesn't hear it—any more than barnyard bleats, bawls, crows, cackles, quacks, grunts, and barks disturb the farmer.

New York is never hushed. It subsides after midnight only to resume its pagan clatter near dawn. Always, here, vain man's urge to express himself in *sound,* as well as form, speaks at concert pitch.

Moving vans bumping, heavy buses thumping; bells, taxi horns, distant tugs and harbor vessels tooting in the fog;



Photograph from Port of New York Authority

TWIN TUNNELS UNDER THE HUDSON RIVER FACILITATE MOTOR TRAFFIC

The parallel Holland tunnels are 9,250 feet long and lead from this point, on Canal Street, in Manhattan, to Jersey City. More than 52,000 vehicles have passed through in a day.

church bells ringing, Salvation Armies singing "Throw Out the Life Line"; motors missing, winches hissing, wrecked buildings falling and new ones rushing up; dry brakes whining, quick lunch dining, hand-organs grinding "On the Sidewalks of New York."

Traffic jams and muttering, irate policemen sputtering, shop girls talking, bird stores squawking, automatic riveters rattatting like machine-gun fire from planes; subways roaring, more tunnels boring for millions that come shuffling; street cars clanging, freight trucks banging, iron-wheeled pushcarts rattling and newsboys battling to sell the crowds pouring from skyscrapers at five; piano movers groaning, café music moaning, waiters profaning and hat-check girls complaining because a surly customer "never left a tip."

And from myriad open doors swells the raucous voice of radio, with news flashes, stock prices, sermons, prayers, hymns, solos on saws, violins, steel guitars, ukuleles, banjos, mandolins, cornets, saxophones, trombones, xylophones, one piano, two pianos, jew's-harps, combs, flutes, lutes, oboes, piccolos, ocarinas, zithers, bass horns, bagpipes; and free advice on what to buy and when to sell it, how to bid at bridge, dye hair, cook rabbit, eat broccoli, speak French, cure parrots, or make a dainty fern basket from an old overshoe; and always feet forever shuffling, crowds coughing, couples chaffing.

Ride inside any bus where you can hear. There, also, is the voice of the city. "He has to find a job for his brother, who just got here from Peoria. . . . They were married in the morning and got right on the boat for Bermuda. It sank that afternoon; all she saved was her new husband and the clothes she had on. . . ."

"His play ran only a week; so many

Photograph by Browning Studios

HERE NO ONE CAN SAY HOW SOON ANY STRUCTURE MAY VANISH

New York is never static. Change is incessant. It erects only to wreck, and then erect again. Here, at 34th Street and Fifth Avenue, the famous Waldorf-Astoria yields to the new Empire State Building (see, also, text, page 531).

flopped this year, and so many actors out of work; it's the talkies. . . ."

"They're always tearing up the streets. . . . My friend's a sculptor. He makes little clay animals for models in the museum. You know, those aren't the real animals you see in the glass cases; they're only plaster. They've got the bones upstairs in boxes. What you see is a plaster form, with the animal's skin over it. . . . But they look natural. . . ."

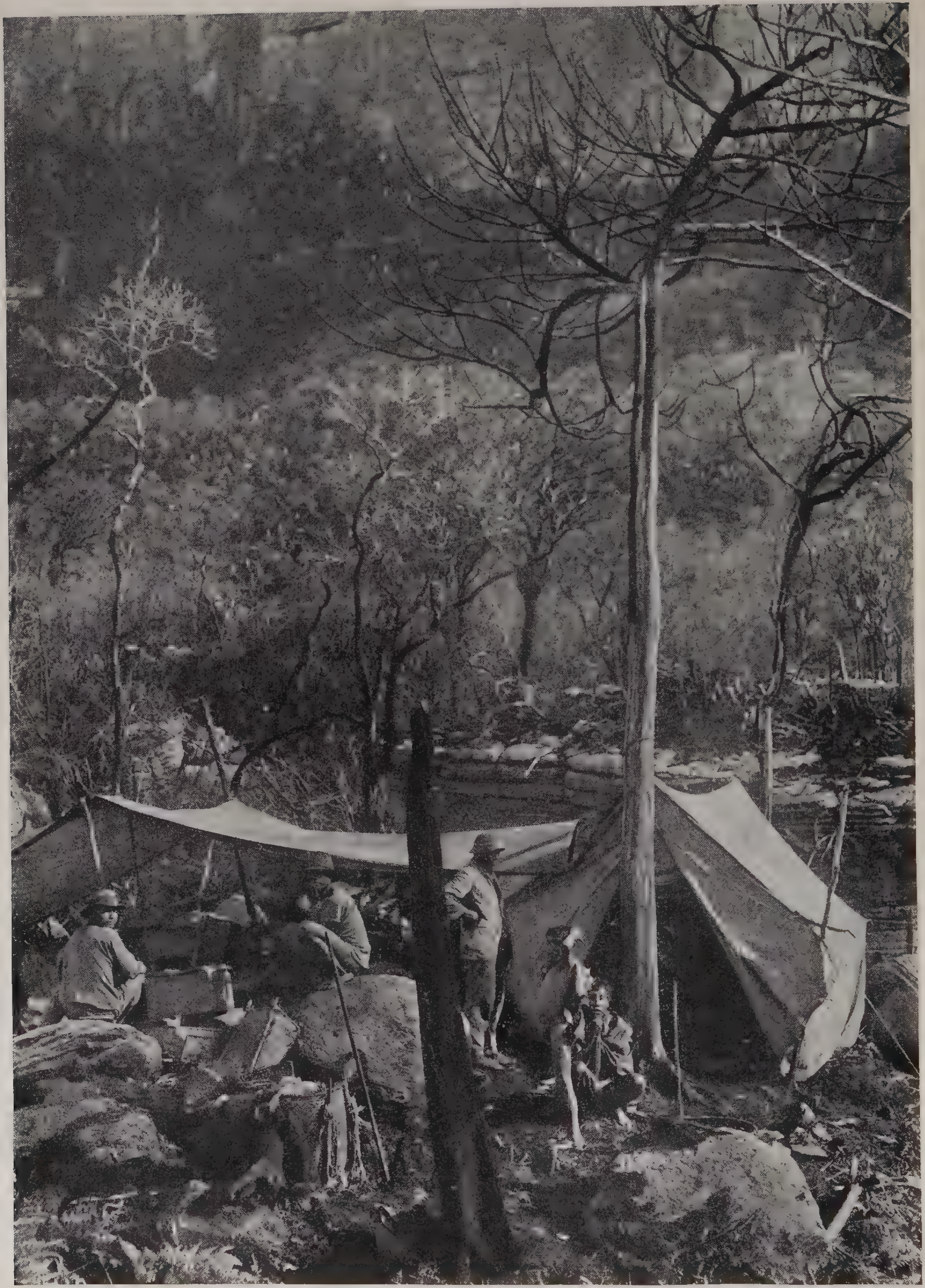
"He's in Sing Sing. . . ."

"I did work for a broker, but he closed the office and went to Florida. . . . "She teaches backward children. She had a hard time getting started in New York, but now she wouldn't live anywhere else."

"We moved here from Denver in 1909. They've been digging subways ever since."

"You'd think they'd finish 'em sometime."

"They can't. The city keeps growing. The papers say it may have twenty million people by 1965."



Photograph by G. H. H. Tate

BIT BY BIT EXPLORERS ARE DIVULGING THE SECRETS OF MOUNT RORAIMA

Here, at an altitude of 6,900 feet, the author established one of his camps during his successful exploration of the lofty table-land on the British Guiana-Venezuela-Brazil boundaries. All of the collecting at this point was done in a cloud forest near by, where the expedition found several rare forms of birds restricted to Roraima (see text, page 595).

THROUGH BRAZIL TO THE SUMMIT OF MOUNT RORAIMA

By G. H. H. Tate

A HUGE table-land, remote, forbidding, belted by stupendous precipices of craggy sandstone, towering eternally among its mantling clouds—that is Mount Roraima. Rising calmly, gradually, at a point where the British Guiana-Venezuela-Brazil boundaries meet, it surveys its world.

It is very ancient. Picture the earth some three hundred millions of years ago, when Roraima was, as it were, born. No mountain then, but a part of the bottom of vast, shallow lakes and deltas.

Ages passed by, during which the land rose uniformly and gradually; lakes dried up or drained away; sands and silts became compacted and cemented together into a level tract perhaps as great in area as New York State.

During further millions of years the strata were injected by great "sills" of molten rock, coming no one knows whence, that actually floated the topmost two or three thousand feet of sandstone beds.

Still later, long-continued erosion etched away the softer sandstones and dissected the new plateau until it became separated into great blocks that successively grew smaller and crumbled away.

To-day the sole remnant of the ancient lake bottom is the Roraima group of table-lands. Roraima itself has acres of its surface lined with perfectly preserved ripple marks of Paleozoic (or older) waters.

LONG A MYSTERIOUS MAGNET TO EXPLORERS

Mount Roraima has ever been a magnet to the explorer, calling, yet defying him to solve the mystery of its origin.* In his turn, each man has wrested his mite of knowledge from the region, and the sum total of their discoveries shows in the picture I have attempted to draw.

Fossil records are entirely wanting. Doubtless primitive fishes, gigantic salamanders, dinosaurs, pterodactyls, and early mammals swam, or crept, or roamed, or flew, during their appointed periods, among the lakes and plains of the territory; but the ceaseless wearing away of the rocks prevented the preservation of the smallest evidence of their existence.

Recently the generosity of Mr. Lee Garnett Day permitted the American Museum of Natural History to send a small, but well-equipped, expedition to the plateau. As the leader, I was accompanied by Mr. T. D. Carter, from the Department of Mammalogy, who on this occasion gave his attention primarily to the collection of birds. Mr. G. M. Tate, my brother, arranged to go with us in a supernumerary capacity, ready to turn his hand to any work requiring his attention. He was helpful in taking entire charge of the commissariat of the party. In midsummer we sailed from New York for Pará, Brazil.

FEW TRAVELERS HAVE REACHED RORAIMA'S SUMMIT

Several travelers have visited Roraima. Comparatively few, though, have reached its summit, and then generally have remained only for a few hours or for a single night.

Our imperfect knowledge of the animal life of the table-land has been derived from several small collections, which, though they often contained a high proportion of new forms, have merely served as appetizers to scientists.

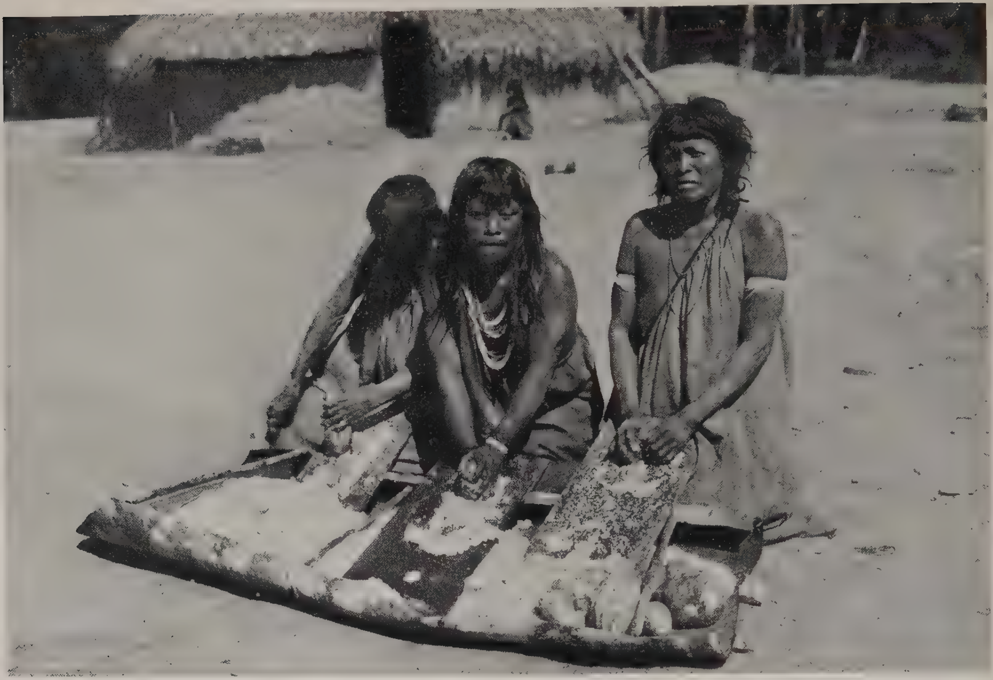
Such unusual varieties as *Diglossa major,* rarest of the honey creepers; *Thomasomys mcconnelli,* the only mammal recorded from Roraima; *Heliamphora nutans,* a very beautiful pitcherplant and the only kind known from South America—all these suggested untold biological riches awaiting discovery.

The object of our expedition was to obtain specimens of all known species, and at the same time to try to bring the list of the fauna and flora of Roraima as nearly as possible to completion.

For such work, time is an essential factor. Equally important is a complete and ample equipment. So far as we can tell from accounts, the pioneers in the Roraima region were somewhat hampered

---

*See, also, "Kaieteur and Roraima: The Great Falls and the Great Mountain of the Guianas," by Henry Edward Crampton, Ph. D., in the NATIONAL GEOGRAPHIC MAGAZINE for September, 1920.



Photograph by T. D. Carter

GRATING CASSAVA TUBERS

The meal is pressed to expel a poisonous juice, and later is baked on hot stones (see opposite page). The trough was cut the day before from the bark of a forest tree.

in just these particulars. Sir Robert H. Schomburgk, on his explorations between 1835-39, worked in this region, and returned later to survey the boundary. His brother Richard made collections of the biota. In 1884 Everard F. im Thurn had the vision and hardihood, after espying the faintly marked "ledge" through his field glasses, to cut a trail through the forests and work his way up the narrow shelf to the plateau; and later John J. Quelch, sick and ailing though he was, maintained himself on the top in only a little brush shelter for nine days.

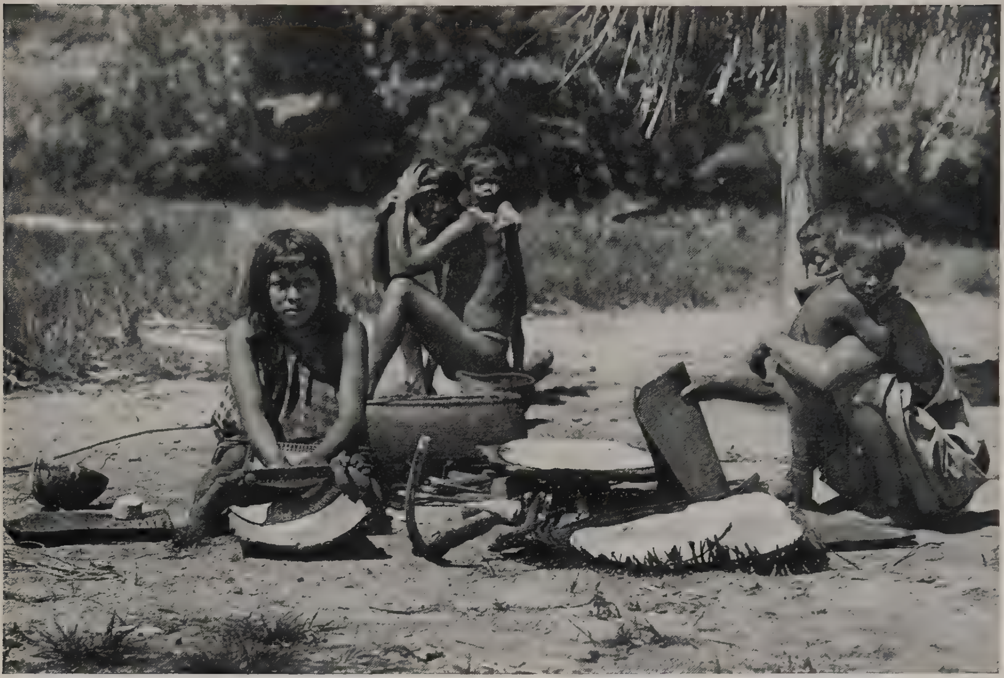
Our expedition spent two weeks on the summit, but we had tents and food and were able to keep fairly warm.

PROCEEDING BY INCHES THROUGH RAPIDS

Because we could obtain porters there much more easily, we decided to approach Mount Roraima from the south. The route lay up the Amazon to Manáos, thence on up the Branco to Boa Vista, and continued by the River Surumú as far as the limit of steam-launch navigation. Afterward behold us with our goods piled high in a large boat, dubbed the *Pig and Wallow,* fighting our way through four great rapids toward the junction of the River Cotinga with the Surumú.

Our Indian boatmen worked waist deep or breast deep in the torrents, now plunging forward with the long tow rope, which they made fast upstream to a tree or a rock; again straining grimly as bit by bit they inched the boat onward against the current. None but river Indians, skilled in the management of canoes, and expert swimmers from childhood, can accomplish such labor without becoming utterly exhausted.

The only considerable interruption to our journey occurred at Limão, after we left the river. Another expedition, under the leadership of Gen. Candido Mariano da Silva Rondon, was bound for Roraima, its objective being to make a reconnaissance of the living conditions of the Indian tribes and of the resources of the border region of Brazil. General Rondon is appointed officially by the Brazilian Government as chief of all the Brazilian Indians. Among the tribes themselves his



Photograph by T. D. Carter

COOKING CASSAVA

The Arecuna girl first sifts the nearly dry meal; then she spreads it evenly on a flat stone, beneath which is a small fire. The starchy, glutinous material is baked without salt.

name is reverenced; his person is held to be almost a god.

The general was expected momentarily in Limão. From far and near the Indians gathered—men, women, and children—ready to do his slightest bidding.

WE JOIN FORCES WITH GENERAL RONDON

Although Limão had become almost a Mecca and hundreds of Indians swung their hammocks wherever they could find room, I was unable to persuade any to leave with me for Roraima. They wanted first to see the general, they said. So I hired a horse and rode southward for two days, to São Marcos, the general's base camp. I found him courteous and attentive; also, widely read, authoritative, and in manner the ideal of a soldier and a gentleman.

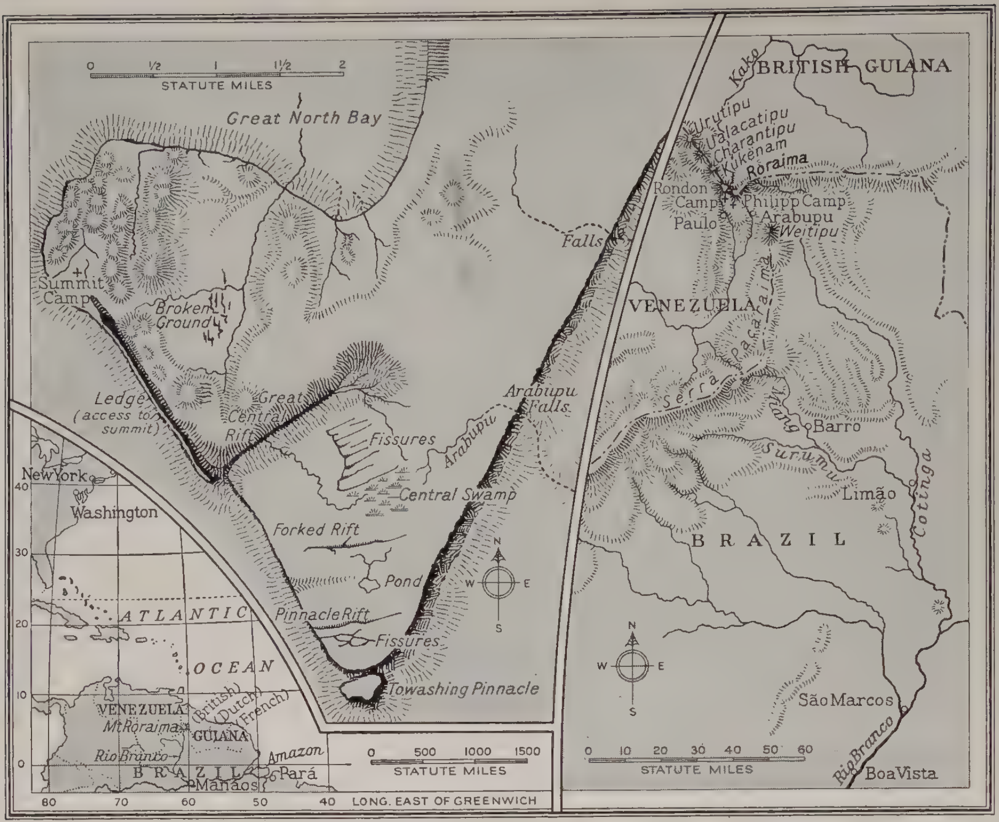
In São Marcos we conceived the plan of uniting our two expeditions for the overland trip. General Rondon was about to drive a herd of cattle through with him to Roraima. I had with me quantities of *farinha,* made from the manioc, or cassava, root. He undertook to provide the proteids; I the carbohydrates for our porters.

At last we started—a great train of more than 300 Indians, young and old, women and men, many of the former with their babies riding on the tops of their loads. Progress was very slow with such a concourse of people.

We crossed hot, arid grasslands studded in parts with countless pagoda-shaped ant hills or relieved here and there by green swamps and palm-fringed brooks, and on the third day we reached the village of Barro, on the Miang River. Consisting of a score of palm-thatched huts, Barro is by far the largest village we saw during the trip northward.

The trail now enters the hills and passes through masses of granite bowlders, among which the Miang weaves its way. After fording this river twice we came to the upper Miang Valley.

This is a wonderfully rich part of the country, with its dense, humid forests and its broken savannas. Here is the home of deer and howling monkey, of guan and anaconda.


0 1/2 1 1½ 2
STATUTE MILES
Great North Bay
Summit Camp
Broken Ground
Ledge (access to summit)
Great Central Rift
Fissures
Arabupu
Arabupu Falls
Falls
Central Swamp
Forked Rift
Pond
Pinnacle Rift
Fissures
Towashing Pinnacle
N
W
E
S
New York
Washington
ATLANTIC OCEAN
VENEZUELA
Mt Roraima
(British) (Dutch) (French)
GUIANA
Rio Branco
Amazon
Pará
BRAZIL
Manãos
40
30
20
10
0
80
70
60
50
40
LONG. EAST OF GREENWICH
0 500 1000 1500
STATUTE MILES
Kako
BRITISH GUIANA
Urutipu
Ualacatipu
Charantipu
Kukenam
Roraima
Rondon Camp
Philipp Camp
Paulo
Arabupu
Weitipu
VENEZUELA
Serra Pacaraima
Miang
Barro
Surumu
Limão
Cotinga
BRAZIL
N
W
E
S
São Marcos
Rio Branco
Boa Vista
0 10 20 30 40 50 60
STATUTE MILES

Drawn by C. E. Riddiford

A SKETCH MAP OF RORAIMA AND CONTIGUOUS TERRITORY

The small map at the left shows the lofty table-land situated where the boundaries of Venezuela, British Guiana, and Brazil meet; the map at the right shows the route by which the author's expedition approached its objective, and in the center is shown in detail the mysterious fissured rock rising from the plain like the prow of a great ship from the sea.

Before us rose the Serra Pacaraima, a great mountain range which marks the boundary between Brazil and Venezuela. A whole day was consumed while we toiled up and over the Pacaraima. At its summit we found ourselves for the first time standing on beds of sandstone. To left and right rolled great grassy hummocks, while below and behind lay the Miang Valley, its jungles and meadowlands now reduced by distance to a patchwork of deep green alternating with pale brown.

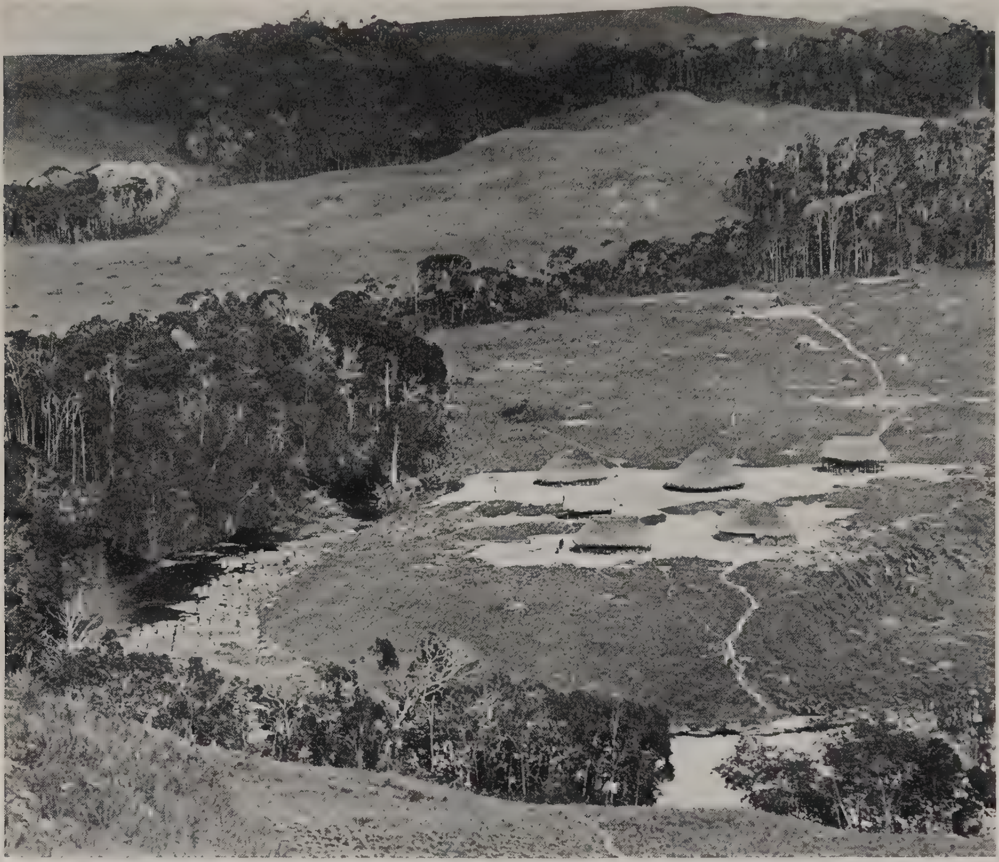
The event of the day, however, was the view we had of the table-lands, Kukenam and Roraima, with several other mountains farther west. Although mist and cloud wreathed their tops, their sheer sides towered starkly against the afternoon sky. They were 40 miles away.

Using three very insecure canoes with open ends, we crossed to the west bank of the Kukenam River and pushed on rapidly over broken ridges, veering gradually round to approach our goal from the southwest.

RORAIMA RISES 4,000 FEET ABOVE AN ELEVATED PLAIN

Three days later we lay at full length on the crest of a high ridge a short way from the mountains, inhaling the invigorating air and rejoicing that our quest was so nearly over. The twin giants, Kukenam and Roraima, loomed before us serene and majestic. Flat-topped and of almost equal height, they towered above us for some 4,000 feet, 8,600 feet above sea level.

Their seamed and craggy precipices, that present an almost impassable barrier between base and summit, glowed red in the late afternoon light. Discolored patches



Photograph by T. D. Carter

ARABUPU, A VILLAGE OF ARECUNA INDIANS

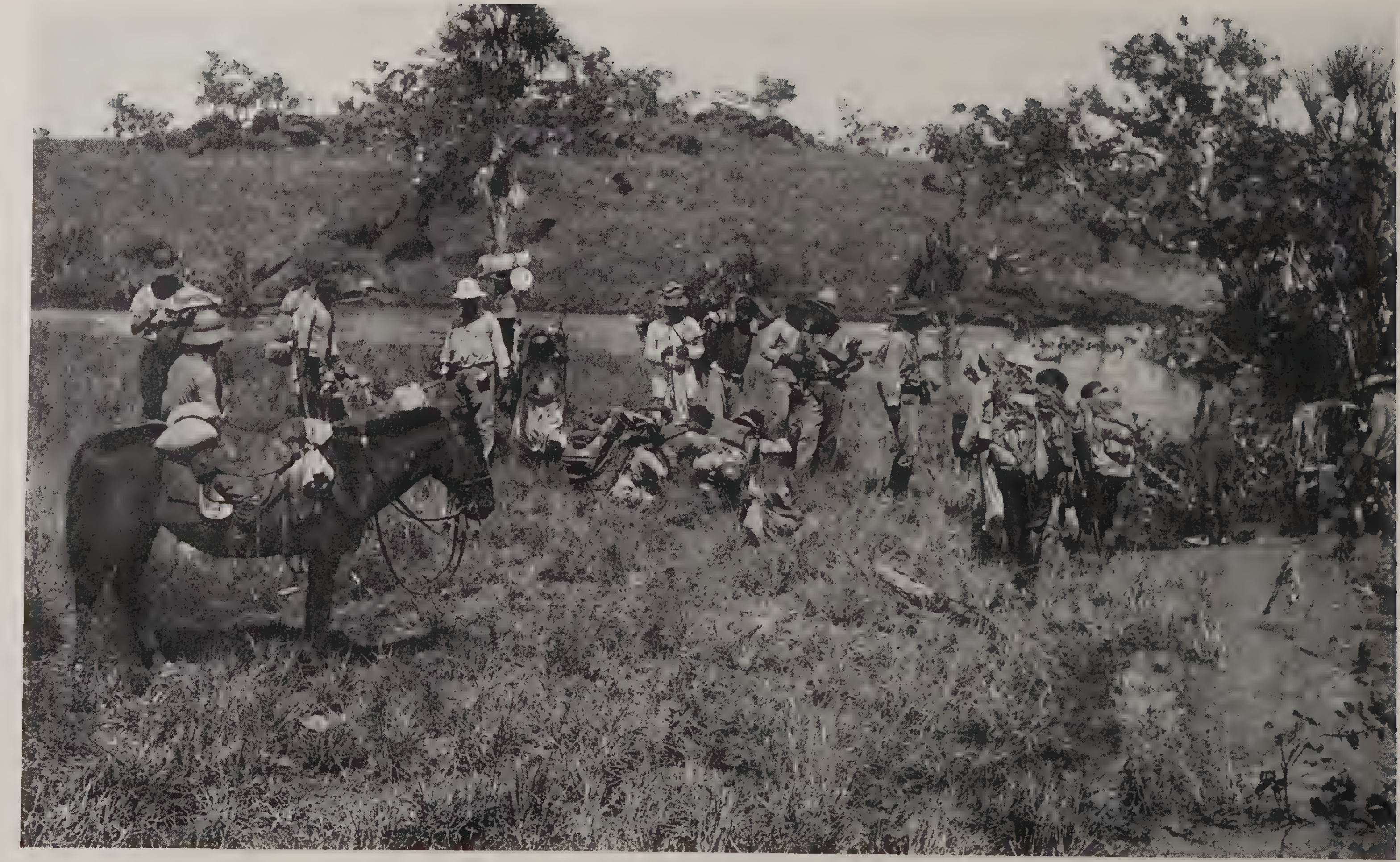
The houses are built either round or oblong with the ends rounded. Fire has passed through much of the forest of the neighborhood (see text, page 592). The village occupies a corner of the savannas bordered by jungle (see, also, illustrations, pages 599 and 600).

and the numerous cracks and clefts traversing the cliffs from top almost to base were picked out in sharp contrast with purples and blacks. Threads of silver, gossamer-thin, stretching from top to bottom of the walls, were falling streams that broke below into glittering spray, then gathered their waters anew and hurried away to the distant ocean.

The precipices of cliff-girt Roraima and Kukenam do not rest directly upon the surrounding plain. They stand on pedestals of volcanic rock whose great slopes, commencing at the foot of the precipices more than 7,000 feet above sea level, stretch outward for some five miles before they finally merge with the 4,000-foot plains.

Starting from base camp, one must climb more than 3,000 feet of steep slope before reaching the sandstone cliff to look up at projecting rocks of the summit, directly above, yet distant almost twice the height of New York's Woolworth Building.

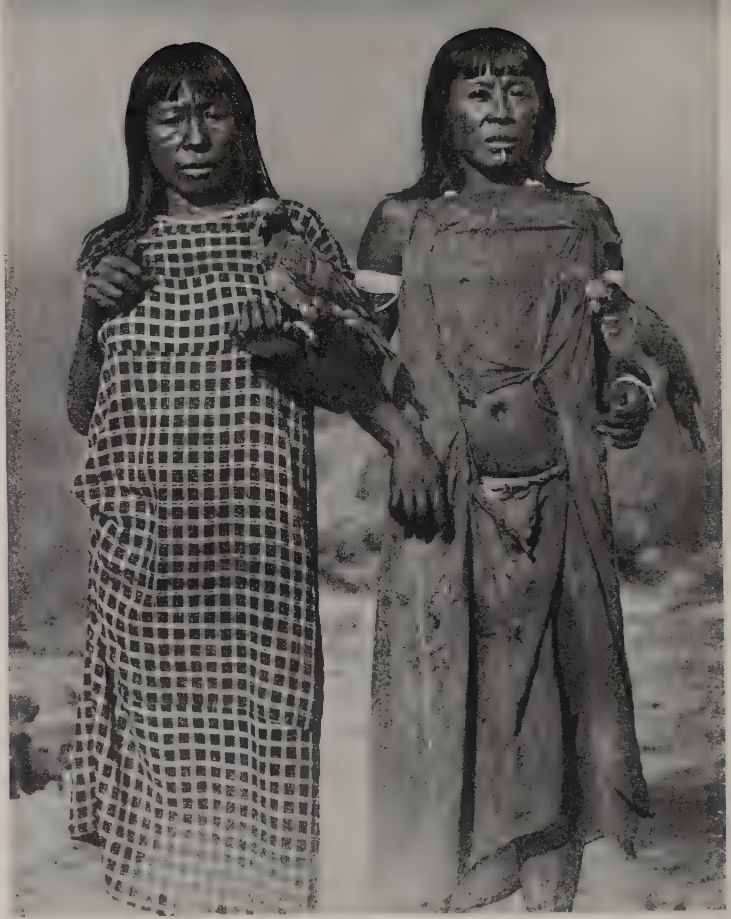
The southwest wall of Roraima (which we first viewed) is about four miles long and terminates at its southern end in the remarkable Töwashing "Pinnacle" of Conan Doyle's "Lost World" fame. On the other side the southeast wall has a length of perhaps eight miles. Roraima would have a rectangular outline were it not for the great gulf eaten back into its mass from the northwest, of which I shall speak later, and which occupies about a fourth of the rectangle (see map, page 588). The smaller mountain, Kukenam, very irregularly rounded, has a diameter of three or four miles.



Photograph by G. H. H. Tate

ENGINEERING IN THE BRAZILIAN WILD

During an enforced halt near the Miang River the Indians bridged a flooded brook with trunks of moriche, a palm (sometimes known as the ité) useful in a number of ways. Its hard wood makes good building material; its leaves make a thatch and yield a fiber for hammocks; its sap makes wine; its fruit juice, beer, and its pith, bread.



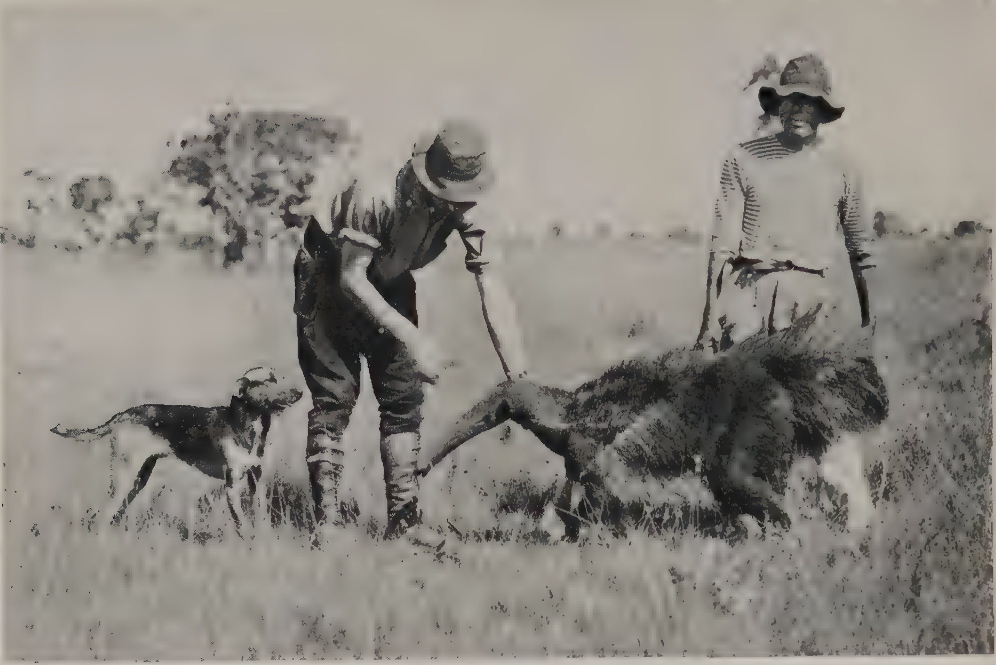
Photographs by T. D. Carter

SCHOOLMASTER AND HIS MUZZLE-LOADER

He is probably the Indian who aided the Clementis in their ascent of Roraima in 1916 and whom Mrs. Clementi refers to as "all muscle and sinew, full of gaiety and laughter." The origin of his peculiar name is not known. Evidently the story of the Schomburgks' visit is handed down among the Indians, for Schoolmaster often tried to tell the Expedition something about "Sham-bran" (see, also, text, page 586).

THESE AMAZON PARROTS ARE THE BEST TALKERS IN THE WILD

The birds often sat together on top of the author's native hut and gave the most amazing vocal imitation of a group of young children at play—screams, shrieks of mirth, chucklings and scoldings, the wailing and whimpering of the hurt ones, and, interspersed through it all, what was no doubt Arecuna baby talk. If brought up from the nest, this species of "screecher" will learn almost every kind of sound that it hears.



Photograph by T. D. Carter

HE IS DEATH AND DESTRUCTION TO TERMITES

The ant bear, or great anteater, shambles from one ant nest to another and tears open the hard clay hills with the huge recurved claws of the forefeet. As the ants swarm out, his wormlike tongue, covered with a glutinous saliva, darts here and there, collecting a mouthful of termites, which must be eaten in enormous numbers to nourish his great bulk. His diminutive mouth contains no teeth. At rest the ant bear looks like a heap of dead grass, for his coarse, wiry hair is black and dull fawn in color and his tail bears a heavy bush of longer growth.

As we drew yet nearer we thought we could distinguish the "ledge," which is the only known way to Roraima's summit, a dark line slanting obliquely across the red cliffs (see page 598).

A RECENT FIRE HAS DESTROYED RORAIMA'S FOREST

One great disappointment awaited us. Of the vast forests of which Im Thurn (see text, page 586) and others speak as clothing the slopes up to the foot of the cliffs, almost nothing remains. Some two years before our coming, after a prolonged drought, fires swept through the woods and left only a desolation of charred stumps. Much of the ruin is already masked by a dense growth of pokeweed and bracken, but years must pass before the hideousness of whitening tree trunks can disappear. I rather doubt whether an equally magnificent forest can ever grow up again.

These fires are started by the Indians to open trails and destroy snakes. Custom also plays a part. When a man goes to visit a neighbor a score of miles away, he lights the grass to give warning that a friend is coming.

We established our base at the Indian community of Paulo, some eight miles from the base of the cliff. I was in no hurry to tackle the upper part of the mountain. Time was needed to become friendly with the old chieftain, Schoolmaster, and his "merrie men," and to gain their confidence, since I felt that much depended upon their coöperation. Besides, I wished to reconnoiter, to plan broadly a scheme for conducting our attack on the Roraima stronghold. So we settled down in one of the thatched houses at Paulo, organized our plans, and sorted out our equipment into some semblance of order.

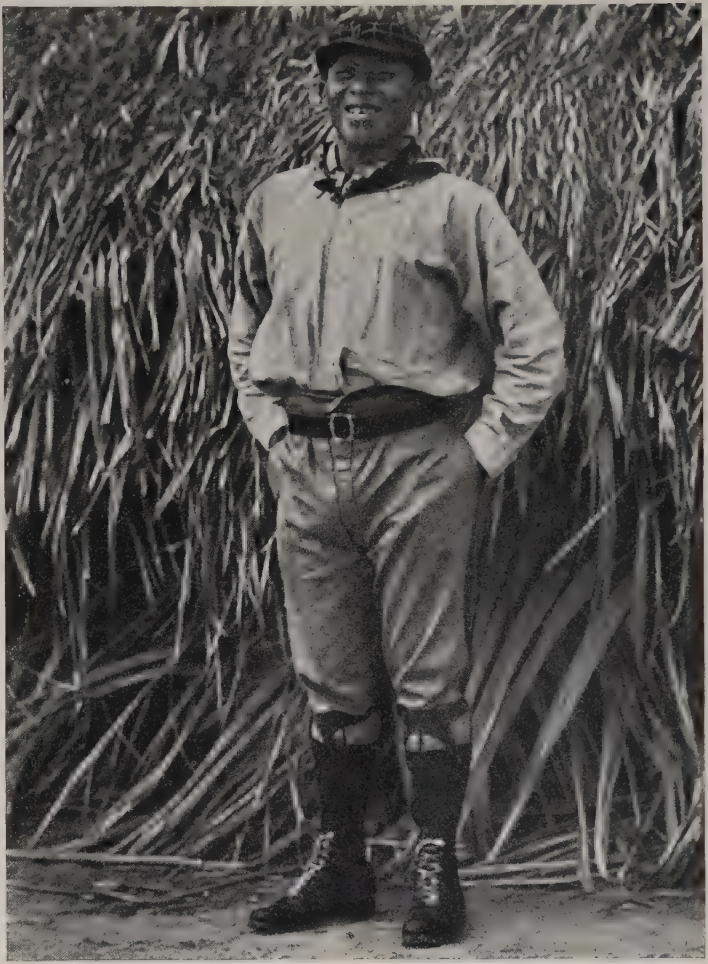
The Rondon party, on the other hand, having little time at its disposal, at once commenced opening the trail to the plateau. On the day of their climb we three walked up to their camp from Paulo and continued with them to the summit. We returned the same afternoon with a perfectly clear understanding of the conditions we should have to meet when we encamped there.

INDIANS PROVE EXCELLENT IMITATORS AND MARKSMEN

Our Indians were a constant source of interest to us. The Arecunas of Roraima are rather small in stature, but muscular and well formed. Mentally they are alert, inquiring, and intelligent.

Imagination is strong among them. When Carter dipped a negative of one of the women, which he had just shown her, into the fixing bath, she pretended to shiver with cold. Imagination with a sense of humor!

They are natural actors. To see old Schoolmaster imitate the shooting of a jaguar was almost worth the whole journey. He danced warily forward and backward, feinted, made little side leaps, leveled or brandished his ancient muzzle-loader—and all to the accompaniment of explanatory volumes of guttural Arecuna.



Photograph by T. D. Carter

ISAAC, THE CHIEF OF THE ARECUNAS AT ARABUPU

Though he is dressed in white man's garb, with the garters outside his trousers, he retains the Indian custom of thrusting pins through his lower lip from the inside.

The Indians can imitate the calls of birds and animals almost exactly. In fact, they seem constrained to try to copy whatever noises they hear. With no difficulty whatever they reproduced the clicking of my typewriter and the swishing sounds of photographic solutions being shaken.

They are wonderful marksmen with their own weapons. One of our young hunters, Igbat, strolled from his hut caressing a delicate little bow and arrow. He drew, and shot a cotton rat crouching under a tuft of grass 20 feet away, just as nonchalantly as one flicks the head off a flower with a stick. With their 12-inch darts of palmwood, poisoned or not, blown through hollow 8-foot tubes, they seldom miss the mark. Numbers of birds were brought to us that had been shot with these implements (see page 602).

Arecunas are primitive in their modes of dress and their methods of barter. The yard of cloth is the monetary standard of the Roraima country; coin of any description is useless. When the Indian can ob-

Photograph by T. D. Carter

PEGGY SEEKS WHITE ANTS FOR DESSERT

She bites first through their heads, so as to be sure that they will do no damage after passing her white teeth. These termites construct low, flattened mounds, markedly different from the pagodalike structures of the species of the lowland savannas. Such mounds are real "finds" to the Indians, who tear them open and eagerly devour the softer-bodied inhabitants as they swarm forth.

tain cloth he makes it into garments. He seldom wears them, though, and prefers to keep them for festive occasions. For most of their lives the women wear closely woven bead aprons and the men red loin cloths.

The woods are still peopled by devils for the Indians. Every village has its *pi-ai* man (witch doctor), who spends his nights dancing and howling weird incantations and burning incense over little fires, and his days blinking owllike at the sun and collecting fees from his patients.

A curious Arecuna legend, another version of the Deluge tradition, was translated for us by the Brazilians:

"Many, many years ago all the land was as high as Roraima and Kukenam, and the two mountains were joined together. Many people dwelt there, and among them three brothers—Anticeron, Anike, and Macunama. The land was very fertile, especially in the neighborhood of Bananatree Mountain (Ualacatipu, west of Kukenam).

"The brothers were joint owners of much of the fruitful land. They became jealous of one another and quarreled. One cut down the banana trees, and from the stump of the last of them, now turned into a mountain, water gushed and flooded the whole world. Macunama was drowned.

"As the flood abated, the land between the mountains sank down and became as it is to-day.

"A man named Cera-cera appeared from nowhere in particular, collected the bones of the people and animals, and brought them to life again."

For services rendered by our Indians we paid chiefly with cheap cloth, but also we gave thread, needles, mirrors, fishhooks, salt—and lipsticks. These last were great favorites. Adolfo, the Peruvian assistant, was our official demonstrator!

ARECUNAS STAY TO COLLECT BIRDS

Leaving much of our material at base camp and impressing upon Schoolmaster that he must see that no one interfered with it, we moved from Paulo up to our first collecting station, Philipp Camp, 5,200 feet. I have adopted the name from the Rondon party, who called it after Dr. Philipp von Luetzelburg, a botanist. It was remarkable chiefly for the vegetation in a near-by swamp, where grew great purple bladderworts (*Calpidisca humboldtii*).

The situation in a grassy savanna between ridges was very pleasant, and I used Philipp Camp as an intermediate base between Paulo and Summit Camp. As a mark of their esteem, four Arecunas resolved to stay and shoot birds for us with their blowguns. We owe nearly all the Philipp Camp birds to this quartet's keen eyes and unerring aim.

I had planned to break the downward journey with a third station at 6,900 feet, where I encountered the several rare forms of birds restricted to Roraima that Frederick V. McConnell and Quelch and Henry Whitely collected years ago.

Photograph by T. D. Carter

JAN-ÉRI, THE GRASSHOPPER HUNTER

The spoils of the chase he has threaded on the stem of a sedge and is about to enjoy the first of them (see, also, illustration, page 597).

THE ASCENT TO THE SUMMIT

The ascent to Summit Camp, though tiring, was in no way dangerous. The ledge (see text, page 592, and map, page 588), which from Paulo appears so insecure and tiny, proved to be a broad slope of soil and rock detritus large enough to bear a good growth of forest, and for the greater part of the climb one scarcely realizes that there is an abyss 50 feet to the left.

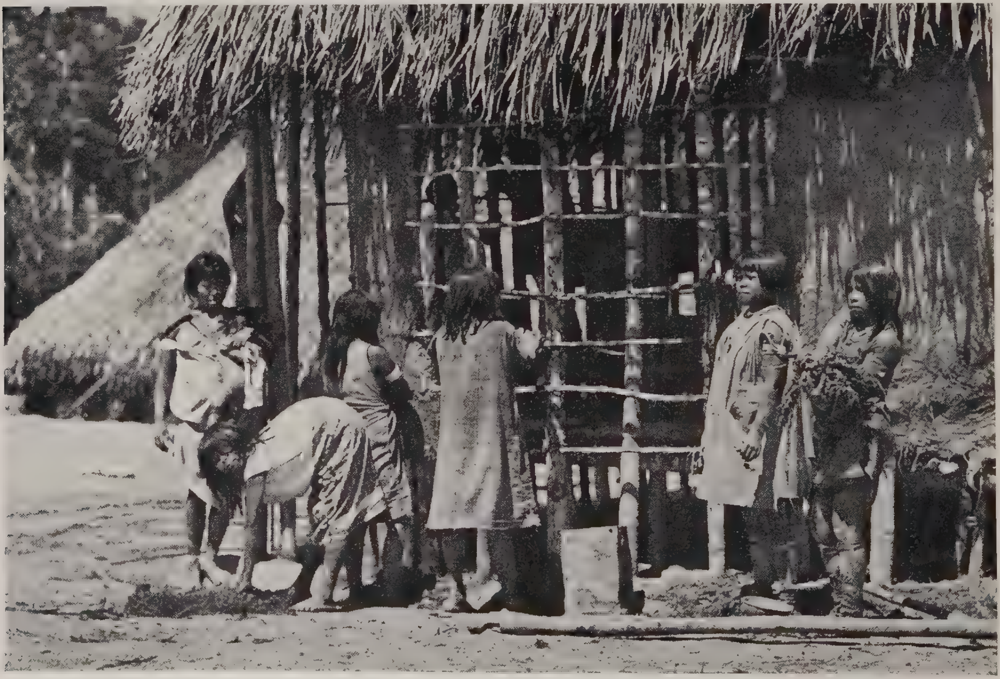
Just one difficult place exists. It is a bluff of sandstone about 15 feet high. A few poles made into a rough ladder enabled us to scramble up, acquiring in the process nothing worse than a thick coating of mud. Later we found a way round the lower end of the bluff.

During the drought the ledge vegetation undoubtedly shriveled to tinder, for the fire flared up through trees and brush to the very top. It even girdled one of the sandstone hillocks on the summit. Wonderful it must have been to see old Roraima's cliffs ablaze.

Except during the heaviest rains, very few waterfalls strike the ledge. One,

A CHEERY TRIBE ARE THE ARECUNAS

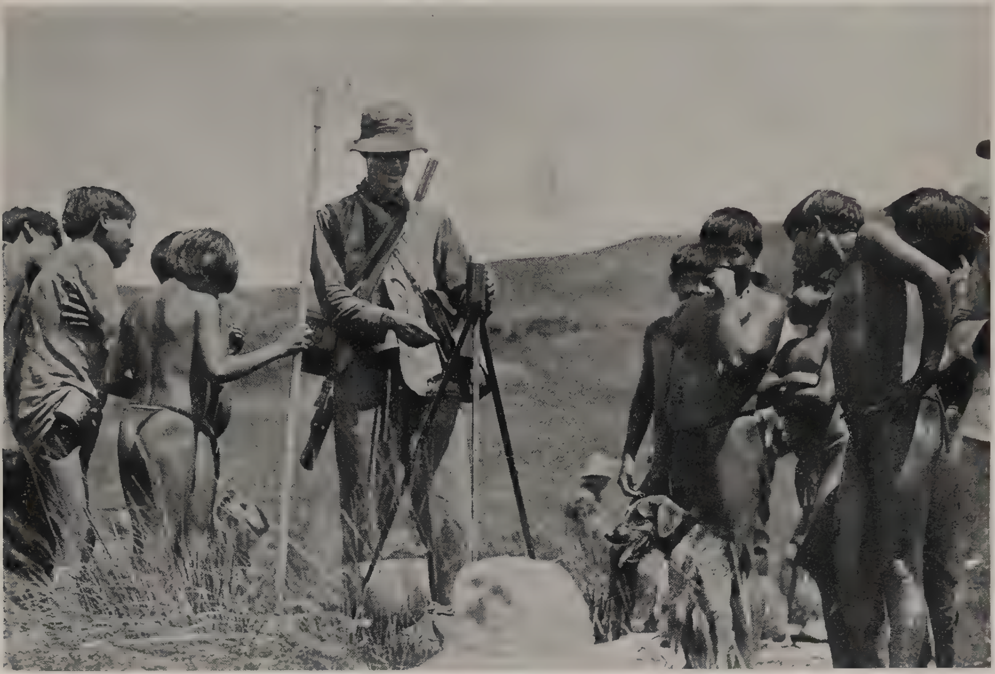
After they conquered their initial shyness they helped the Expedition willingly, bringing firewood and water and carrying loads during excursions about Roraima. This photograph was taken just outside the hut which was preëmpted for base camp.



Photographs by T. D. Carter

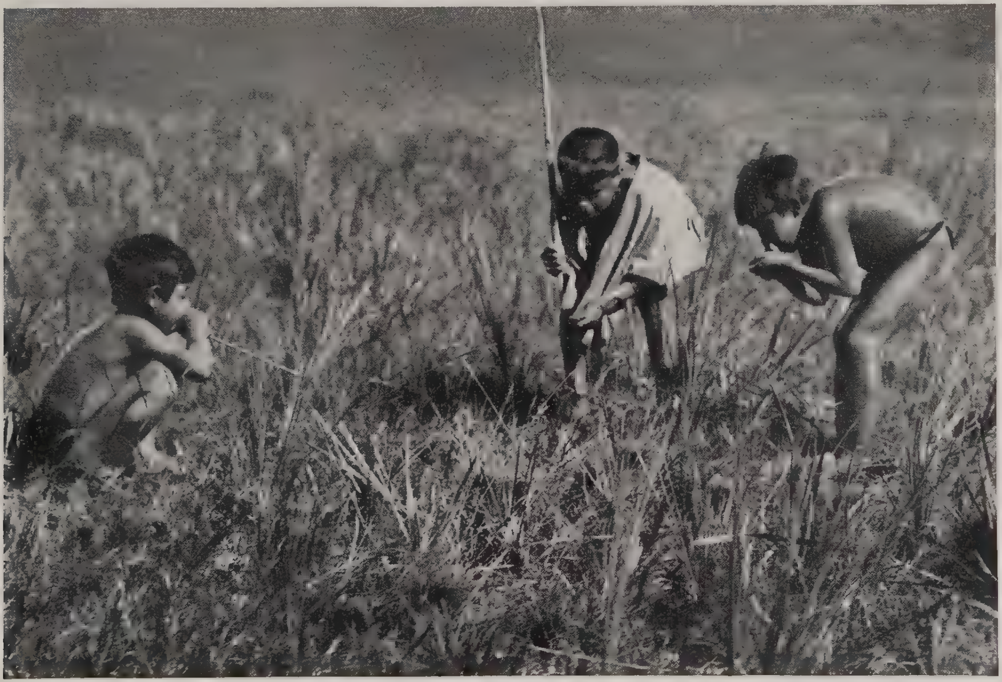
MAKING THE ADOBE WALLS OF A HOUSE

The clay, mixed thoroughly with straw, is wrapped around the horizontal bars, where, after it is dry, it adheres firmly. Note the suppleness of the girl picking up clay. Her knees are kept straight.



HAVING FUN WITH THE WHITE MAN'S MYSTERIOUS BLACK BOX

The Arecuna porters found great enjoyment in looking at each other's faces, dwarfed by the lens of the finder, from opposite sides of the camera. Imagination with a sense of humor is one of the chief characteristics of these alert, inquiring, and intelligent Indians.



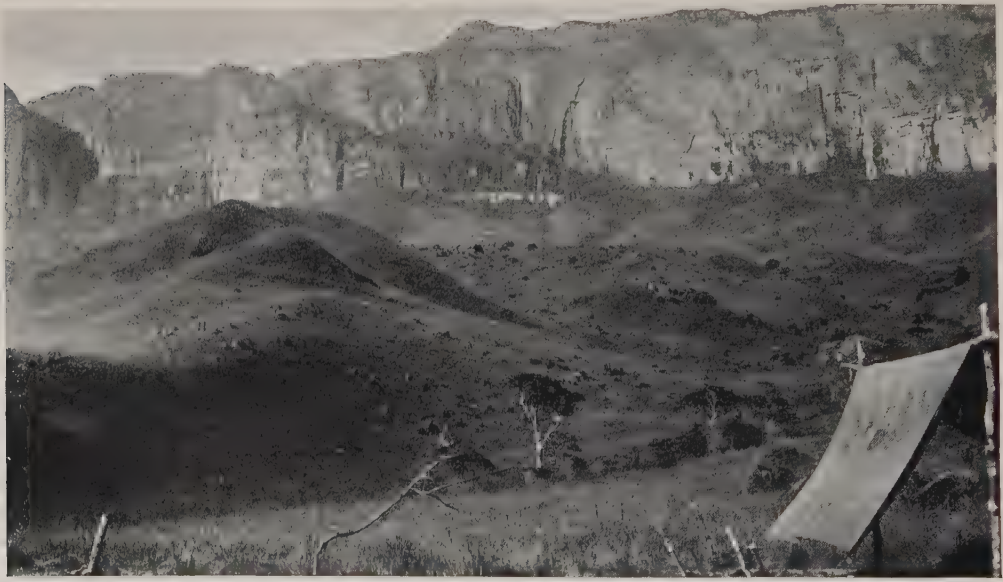
Photographs by T. D. Carter

CATCHING GRASSHOPPER TITBITS

The lad in the middle does great execution with his stick, but the others, who blow clay pellets through their cane bean-shooters, cause the hoppers little inconvenience. The boys eat the insects, first picking off the hind legs, so that they won't kick as they are swallowed.

EVEN ON THE CLEAREST DAYS A THIN HAZE DRIVES OVER MOUNT RORAIMA

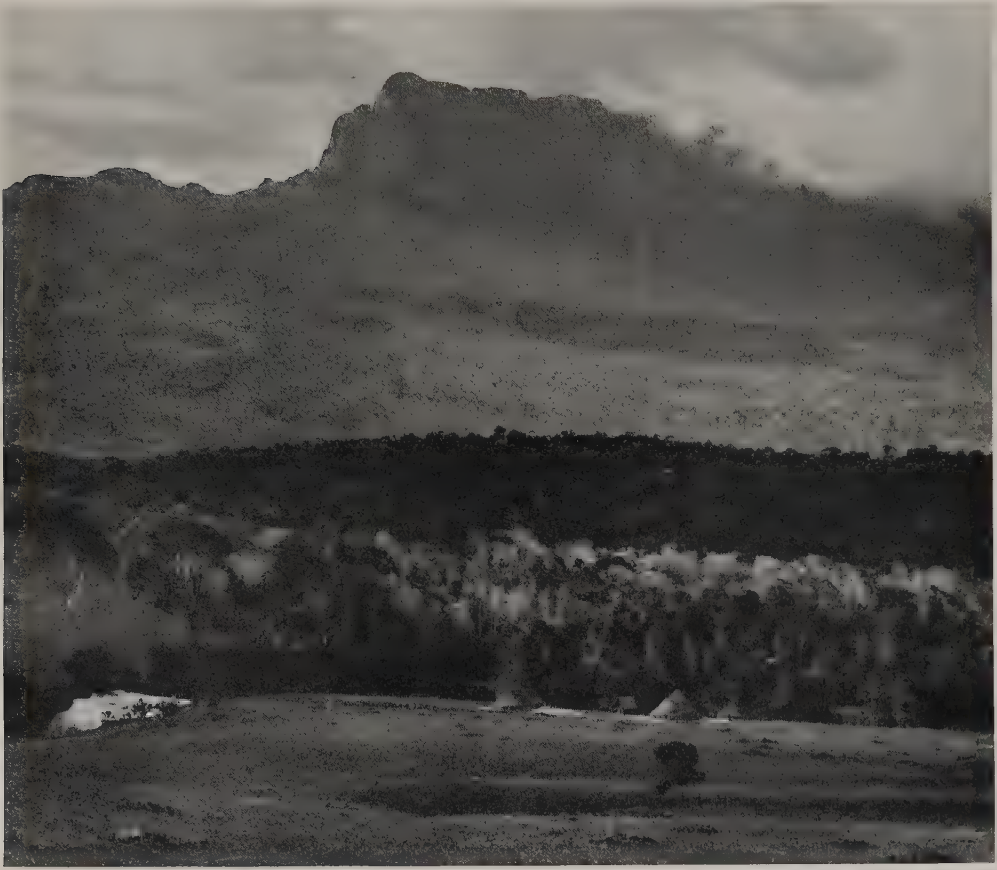
This view was taken from the northwest point, looking across at the north point of Kukenam.



Photographs by G. H. H. Tate

THE ONLY KNOWN APPROACH TO RORAIMA'S SUMMIT

A dark line slanting obliquely across the red cliffs—that is the famous "ledge," discovered by Sir Everard im Thurn. So far as available records show, he was the first human being to cut a trail through the forest to the toe of the ledge and to work his way to the top of the mountain. This was in December, 1884. In the foreground is part of Philipp Camp (see text, page 595).



Photograph by T. D. Carter

MOUNT RORAIMA—"A VAST BATTLEMENT CONSTRUCTED BY TITANIC NATURE"

The precipices of this monarch and of Kukenam do not rest directly upon the surrounding plain, but stand on pedestals of volcanic rock whose great slopes stretch outward for some five miles before they finally merge with the plains (see text, page 589). Of the vast forest which Im Thurn described as clothing the slopes up to the foot of the cliffs, fire has destroyed the greater part. In the foreground, some 4,000 feet below the mountain, are the huts of Arabupu village and a waterfall (see, also, illustrations, pages 589 and 600).

though, near the top, is almost always falling and soaks the climber like heavy rain.

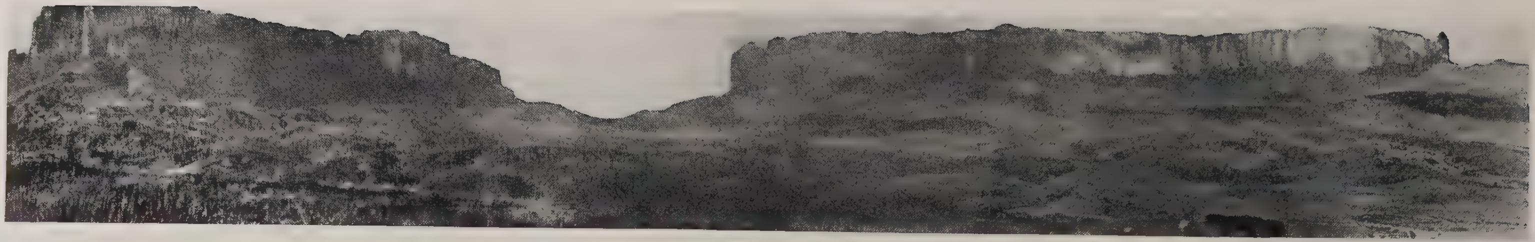
Sometimes, on the way up, one has a splendid view of the country below, spread out like a map, but for many hours at a time mist obscures all except near-by objects.

And the top—how can I describe it? You leave the ledge and scramble through a broad, rocky trench into a shallow basin of water-sculptured rock about a quarter of a mile long and 200 yards wide. There you find yourself ringed around by castellated cliffs like miniature table-lands. They are called *morros* by the Brazilians.

I recognized in this depression Mrs. Cecil Clementi's "amphitheater," described in her book, "Through British Guiana to the Summit of Mount Roraima," and also her "frog," perched on the rocks at the opposite end of the hollow (see, also, page 605).

GRANDEUR AND SILENCE OF THE MOUNTAIN ARE OPPRESSIVE

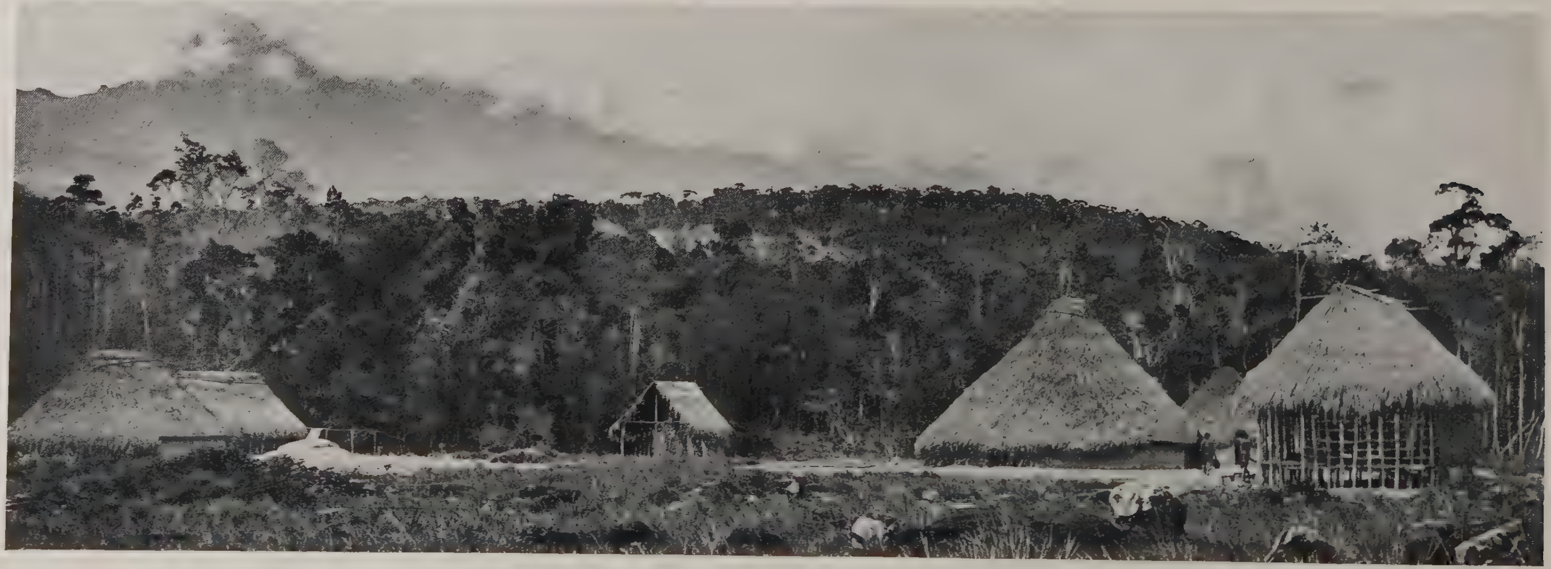
The grandeur and majesty of the summit of the mountain, coupled with an unbroken silence and the enormous scale upon which the whole is executed, are appalling. One feels oppressed, dwarfed, almost as if one were a trespasser.



Photograph by T. D. Carter

THE TWIN TABLE-LANDS, KUKENAM AND RORAIMA—"FRAGMENTS OF AN EARLIER WORLD"

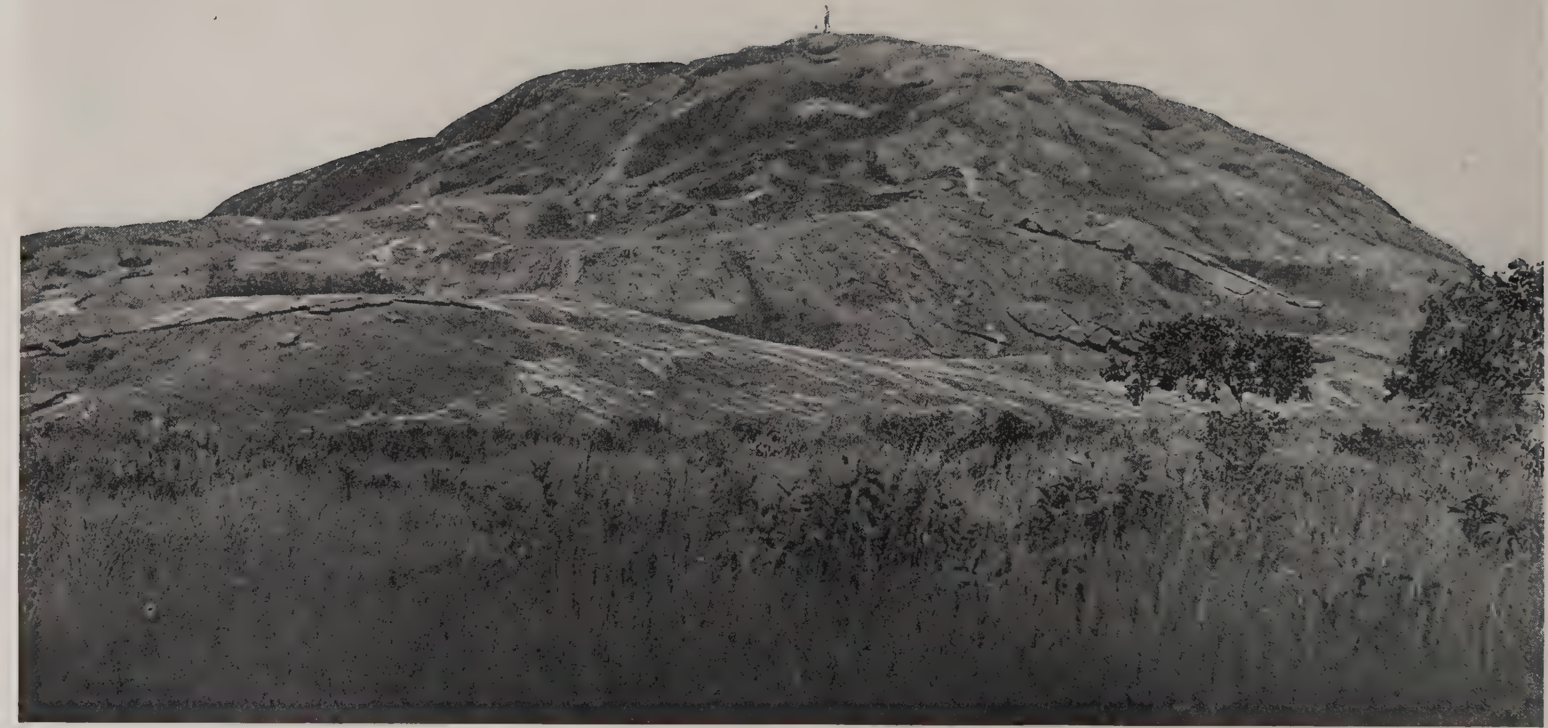
Flat-topped, almost of equal height, these giants tower more than 8,600 feet above sea level and some 4,000 feet above the elevated plain. Kukenam, the smaller (left), is 3 or 4 miles in diameter. According to new estimates, which are believed to be approximately correct, Roraima measures about 4 miles along its southwest wall and perhaps 8 miles along its southeast wall (see text, page 589). Töwashing Pinnacle at the right.



Photograph by G. H. H. Tate

TEN MILES BEYOND ARABUPU LIES MOUNT RORAIMA, SHROUDED IN ITS CLOUD VEIL

Writing of Roraima and its sister mountain, Kukenam, Sir Everard im Thurn says: "Rarely did we see the scene quite clear—a fact which, as the Indians were never tired of explaining to us, was owing to the habit of the mountain—they regard both mountains as one—of veiling itself whenever approached by white men."



Photograph by T. D. Carter

"PEDRA GRANDE," AT THE FOOT OF WHICH THE SURUMÚ RIVER PASSES

Note how great flakes of the granite crack off. This process is due to the exposure of the rock to the blazing heat of the daytime and at night to cool breezes which cause it to contract.

Photograph by T. D. Carter

A BLOWGUN EXPERT

All the Indians of the Roraima region are highly skilled in the use of this weapon. They blow a 12-inch palmwood dart through an 8-foot tube and seldom miss the mark (see text, page 593).

We established our camp in the only site at all suitable, the one occupied by every explorer since Im Thurn's time. Cemented in the rock wall we found the little brass plate left by Mr. and Mrs. Clementi. I took a pencil rubbing of it. It is inscribed:

C. C. & P. C.
Govt Secy & Wife.
Visited Jany 1916.
God save the King.

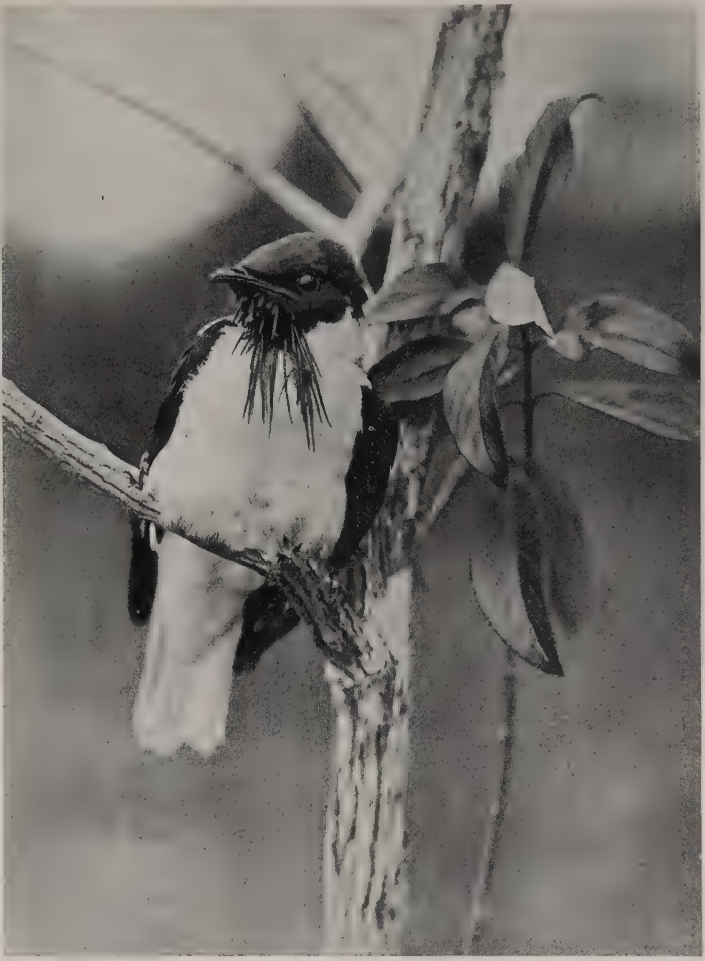
The amphitheater is not really typical of the main plateau, to gain a proper understanding of which one must find a way around or over the morros that cut one off from the great central plain to the east. We succeeded in climbing to the top of a hillock about 50 feet above camp, which we nicknamed the Tiger's Ear (from its form), probably the highest point on Mount Roraima.

The Tiger's head is unmistakable when seen from the camp. Carter and my brother made a flag of handkerchiefs and with considerable difficulty tied the pole to the "Ear."

Seen from such a vantage point, the central part of Roraima appears a vast, barren plain. The haze drifting over the scene, the desolation and utter lack of comparative objects, cause one to lose all sense of proportion and distance. Except on the north, the almost featureless plain seems to reach away to infinity.

On the northern side, though, a surprise awaits one. Hidden from Paulo by the high ridge connecting Roraima and Kukenam, and consequently apparent only from the top, a huge embayment has eaten back into Roraima's mass from the northwest and north and has left only a comparatively narrow, much-dissected tongue of rock to form its eastern wall. We came to think of the whole mountain as an island and we named this gulf the Great North Bay.

The first time I looked across the bay at its opposite wall I noticed that part of it, perhaps a quarter of a mile in width, had an easy slope of 45 degrees from the top downward. Here, I thought, is another way up Roraima. When next I looked the mist had rolled away and I saw that the slope ended throughout its width in a 300-foot precipice. The floor of the bay is covered by a rolling sea of forest and has, I judge, a very heavy rainfall.



Photograph by T. D. Carter

AN AVIAN ANVIL CHORISTER

The music of the bell bird sounded everywhere through the woods. A ringing "clink-cla-ang" that seemed almost overhead came from a bird half a mile away, the sound being not unlike that produced by repeated blows of a hammer on an anvil. This species, *Procnias variegata,* is numerous from Cotinga River to Roraima. Its head is coffee-brown, its body silver-gray, and its wings black. From its throat hang long, black, stringlike wattles.

Standing on the rim of the Great North Bay, one sees a part of Kukenam Mountain invisible from below. It reaches well to the north and ends in a large island table-land separated from the parent mass by a comparatively narrow chasm, perhaps 150 feet wide and 1,000 feet deep.

Then, too, the connection between Kukenam and Roraima (named by us the Notch) is by no means a pass through which one can travel easily from the south side to the north, but a high, narrow knife-edge of rock falling steeply away on its northern side to the tributaries of the Kako.

Attempts to explore the plateau were attended with much difficulty at first. Water has dissected the horizontally bedded sandstones, abounding in fossil ripple marks, into a veritable maze. Shallow gorges, from 5 to 20 feet deep, wind in all directions, deepening wherever they coincide with joint cracks in the rock to crevasses of unknown depth. Within 100 yards of the edge, erosion has scoured out the gullies into immense rifts; and cracks parallel with the cliff, and varying in width from a few inches to as many feet, forecast future great rock falls.

THE GREAT CENTRAL RIFT ALMOST BISECTS RORAIMA

Days passed before we marked out the easiest routes for rapidly reaching and crossing the interior basin. And the more we explored the more we became convinced that the estimated area of 50-odd square miles is a great exaggeration; probably 25 is nearer the truth.

From the middle of the southwest side a great rift runs back in a direction somewhat north of east for more than halfway across the mountain. I suspect that it gives rise to the large overflow of water that gushes out from a hole about 100 feet up the cliff onto the ledge near its foot. This waterfall appears only during the heaviest rains, but then in tremendous volume.

The Great Central Rift, as we dubbed it, has at its head, near the center of the mountain, quite a wealth of small arboreal vegetation similar to that flanking the morros.

After crossing the Central Rift on a great bowlder wedged between the walls, we found our way as best we could, over a much-broken piece of country, in a southeasterly direction to the Central Swamp. This bog is the largest piece of marshy ground on the plateau, being about 200 yards long and 75 in width. It resembles a very shallow pond from a few inches to a foot in depth, dotted all over with tussocks of pipewort, yellow-eyed grass, and sedges.

Mr. Benjamin Rondon visited it and reported a pair of wading birds which were extremely shy. We were unable to verify the observation, although we visited the place on several occasions.

JOY IN COLLECTING STRANGE CREATURES

Most of our time was given to collecting specimens of the animals and plants on the summit. While aware that none of the startling creatures of the "Lost World" could ever be encountered, I experienced that excitement familiar to every hunter and collector, as I traced out my line of 300 traps among the rocks and bushes.

In every tenth trap or so I found some creature whose like occurs nowhere else in all the world. Carefully I wrapped each little furry body in paper and stowed it away in my knapsack.

As I baited and reset each trap, my eyes searched keenly for more telltale signs—burrows, runways, droppings—and my ears were alert for the cheep and twitter of somber-plumaged little birds hiding among the low brush of the summit. Amid the murk of almost perpetual fog, such an existence as these creatures lead seems to us unbearable; yet it is all they know.

Creeping slowly among the rocks and reeking mosses were numerous tiny black toads.

I delayed collecting the strange and varied plants of the summit until just before leaving the plateau, because of the danger of mildew in such a climate. However, long before then I had listed all their habitats and had only to make a few excursions to secure them.

Far in the interior, at the edge of the Central Rift, a plant grew which I saw nowhere else—a St. Johnswort. All about camp, ferns with fronds shaped like long-handled ice-cream spoons grew beneath overhanging ledges. Starlike vermilion flowers blossomed from cracks among the rocks everywhere.

With a mingling of sedges and sundews, square yards of closely packed pitcherplants formed cushions of soft vegetation into which one often sank nearly knee-deep.

When not trapping and shooting, we searched out all the smaller creatures. Among the damp vegetation, under rocks, in the clear pools of the summit, in every possible place of concealment, we sought beetles, spiders, centipedes, and whatnot.

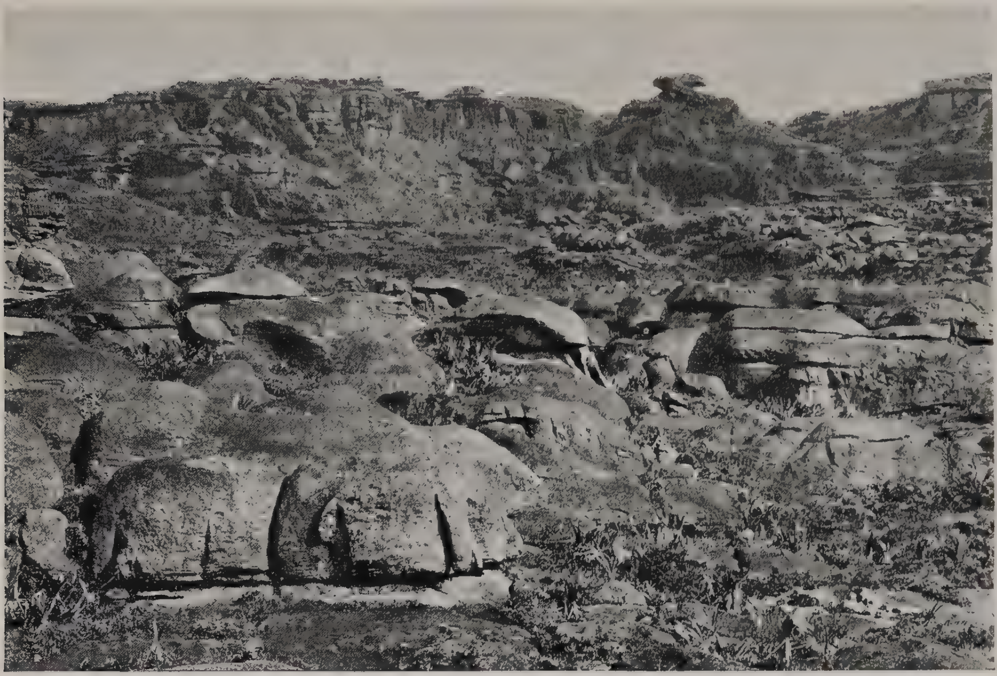
I made collections of those insects affecting certain of the leading types of vegetation, such as *Bonnetia, Didymopanax* (related to our ginseng), heaths, composite bushes. This was done both by searching the stems and foliage of the plants and by beating their branches above an inverted umbrella. Many small weevils and spiders were taken in this way.

With nightfall and the lighting of the gasoline lantern came a host of night moths, daddy longlegs, and flying creatures that, despite our search, we seldom found by day.

DESOLATE SUMMIT CAMP

Summit Camp was a desolate place, with the gray mist of late afternoon driving over and the steady drip of water all about us. That was the time when the little flag at the peak of the tent drooped disconsolately against its pole. That, too, marked the hour when, wrapped in our warmest clothes, we called loudly to José, the cook, for food and drink. Some of our negatives suggest a camp site among hummock ice in the Arctic regions. At times we could almost believe that it was.

Even to pitch camp in a place where there is no level ground, where you cannot drive a tent peg, and where there are no tent poles to be had except those you bring up a thousand feet, requires a little ingenuity. We anchored our tent ropes with stones and spread our heavy tarpaulins from rock to rock.



Photograph by T. D. Carter

WHERE "LITTLE MEETS THE EYE SAVE ROCK"

Weird, weatherworn objects of rock—umbrellas, a dragon, a frog (on the skyline to the right)—are conspicuous features on Roraima's summit. On the other hand, most of the gray shapes are so similar that a person might easily lose his way wandering about, especially when the mountain top is veiled in its usual mantle of mist (see, also, text, page 599).

Fog on Roraima not only is disagreeable, but has an annoying way of blotting out for hours together the picture that has cost much scrambling over slippery rocks to seek. For the greater part of each day great cottony clouds billow up the cliffs and tower on upward for a thousand feet more. Quite often the mountain is walled in by mist, but the sun shines down brightly in the center. Then a touch of wind, and the cloud sweeps over, blanketing every feature.

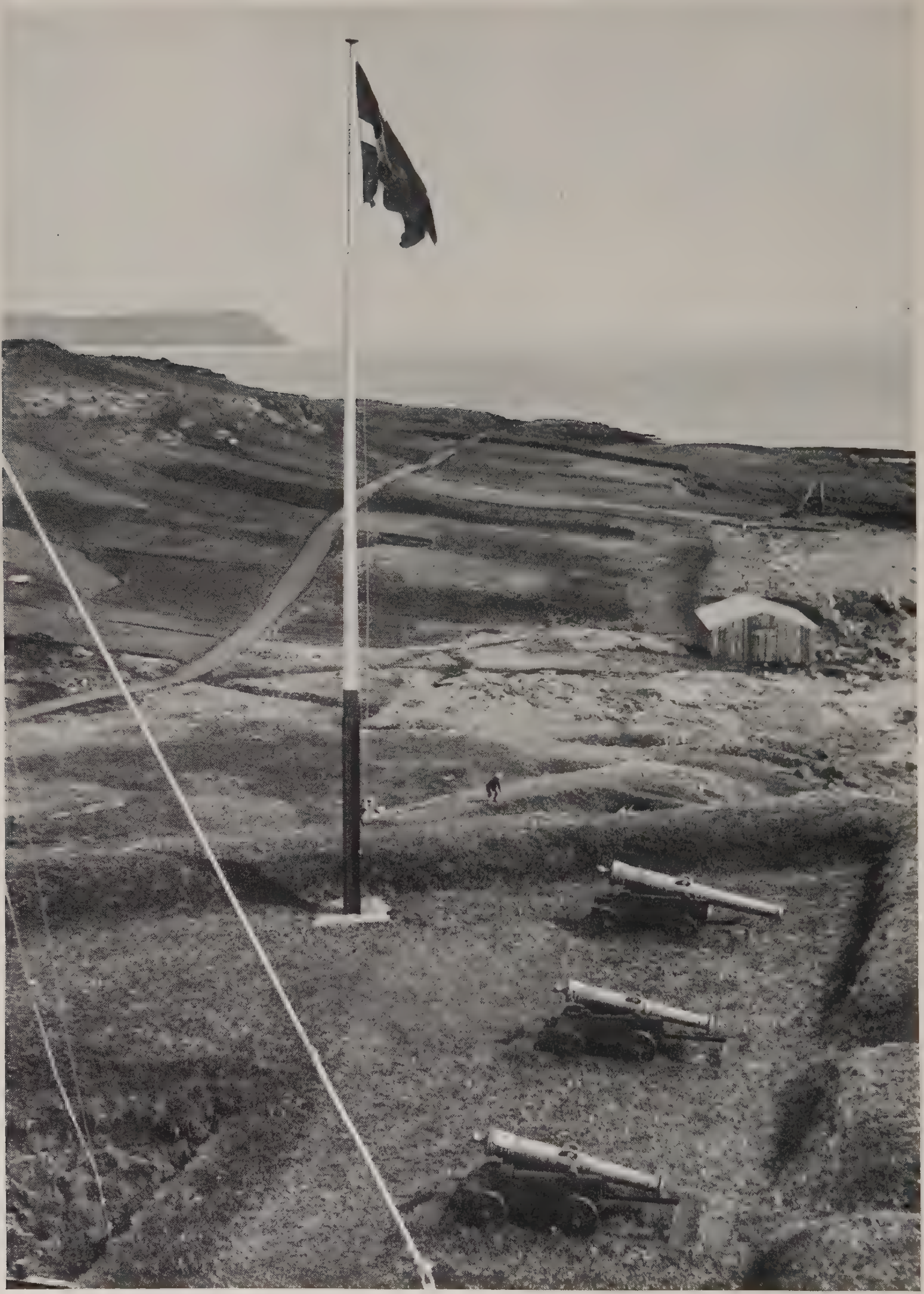
The Brazilians very appropriately name the sandstone *pedra de amolar,* or grindstone. It wore out our shoes in short time. In a couple of days my dog's claws wore down to the quick, so that he had to learn to cling with his pads, tree-toad fashion, when he jumped from rock to rock.

The summit vegetation is chiefly confined to the edges of the sandstone morros. For the most part its character is heathlike, but many herbs and a few undernourished-looking trees grow there.

Of the animal world many groups have representatives on the plateau: birds, 11; mammals, 3; the tiny black toad; numerous arthropods, most of which are insects.

So, instead of finding a rocky waste supporting next to no animal and vegetable life, we have definite record on Roraima of more than 120 kinds of living creatures, more than 90 of higher plants and ferns and many mosses and lichens.

Some weeks later I looked back at the twin mountains, almost obscured by black clouds. Quite apart from these wonders of Nature and the strange plants and animals that dwell there, I like to think of Roraima as having personality. Utterly cold and aloof, he inspires reverence rather than affection. Yet the Indians who played as children and grew to manhood at his feet seem happiest when within sight of his frowning cliffs. "Ru-ru-ima, the Father of Waters," is angry, or calm, or speaks through the thunderstorm. Is he kind? Does he ever smile for his Arecuna children?



PIRATES, BEWARE! FAEROE GUNS STILL GUARD AGAINST RAIDS

Above the ancient fort commanding Thorshavn flies the flag that proclaims the islands a Danish possession; yet the islanders proudly announce that they are not Danes, but "men of The Faeroes." Settled largely by Norwegians, the archipelago remains under Danish sovereignty through an oversight in the treaty which was drawn up following Norway's secession from Denmark in 1814.

VIKING LIFE IN THE STORM-CURSED FAEROES

By Leo Hansen

With Illustrations from Photographs by the Author

A MOTHERLY hen clucking to three wild ducklings strangely out of place in her landlubber flock!

Such a picture Denmark presents, as she scratches vigorously for better times for Iceland, Greenland, and The Faeroes. To the last named, particularly, Denmark has given much attention because they have been made economically sick by changes in world trade.

Four days out of Copenhagen, past the southern point of Norway, beyond the Shetland Islands, we came at last to Thorshavn, capital and chief port of The Faeroes, for which Denmark labors. As the *Tjaldur* came to anchor behind the sheltering arm of a new concrete breakwater, much evidence of Danish aid was visible. I saw in the town, but out and away from the haphazard roofs of the dwellings, the new hospital and the high school. Over the barren hills went a procession of Government telephone posts bearing the wires which now make possible communication with six of the 17 inhabited islands. Indeed, the *Tjaldur* itself is an evidence of Danish aid, since the Government helped the islanders buy the trading steamer which plies regularly between Copenhagen and Thorshavn.

Still, The Faeroes remain practically unchanged by modern civilization and untouched by the tourist. Modern civilization can find no foothold on their windy cliffs; there life can exist only when modeled on ancient, primitive patterns. And so the islanders, forever wrestling with waves and winds, have little time for the tourist or his money.

THE FAEROES RIDE THE STORMY ATLANTIC

Like the giant battle fleet of some latter-day Thor, The Faeroes ride the stormy Atlantic, straining each at its anchor. First comes Myggenaes, in the "destroyer" class, taking against her 370-foot bow the Atlantic's biggest waves. At her stern is Vaagö, a "battle cruiser" by comparison. Then come the "dreadnaughts" on a broad fan front: Syderö, Sandö, Strömö (the largest), and Österö, with the smaller Kalsö, Kunö, Bordö, and Viderö ranging along on the right. The group also contains even smaller islands (see page 610).

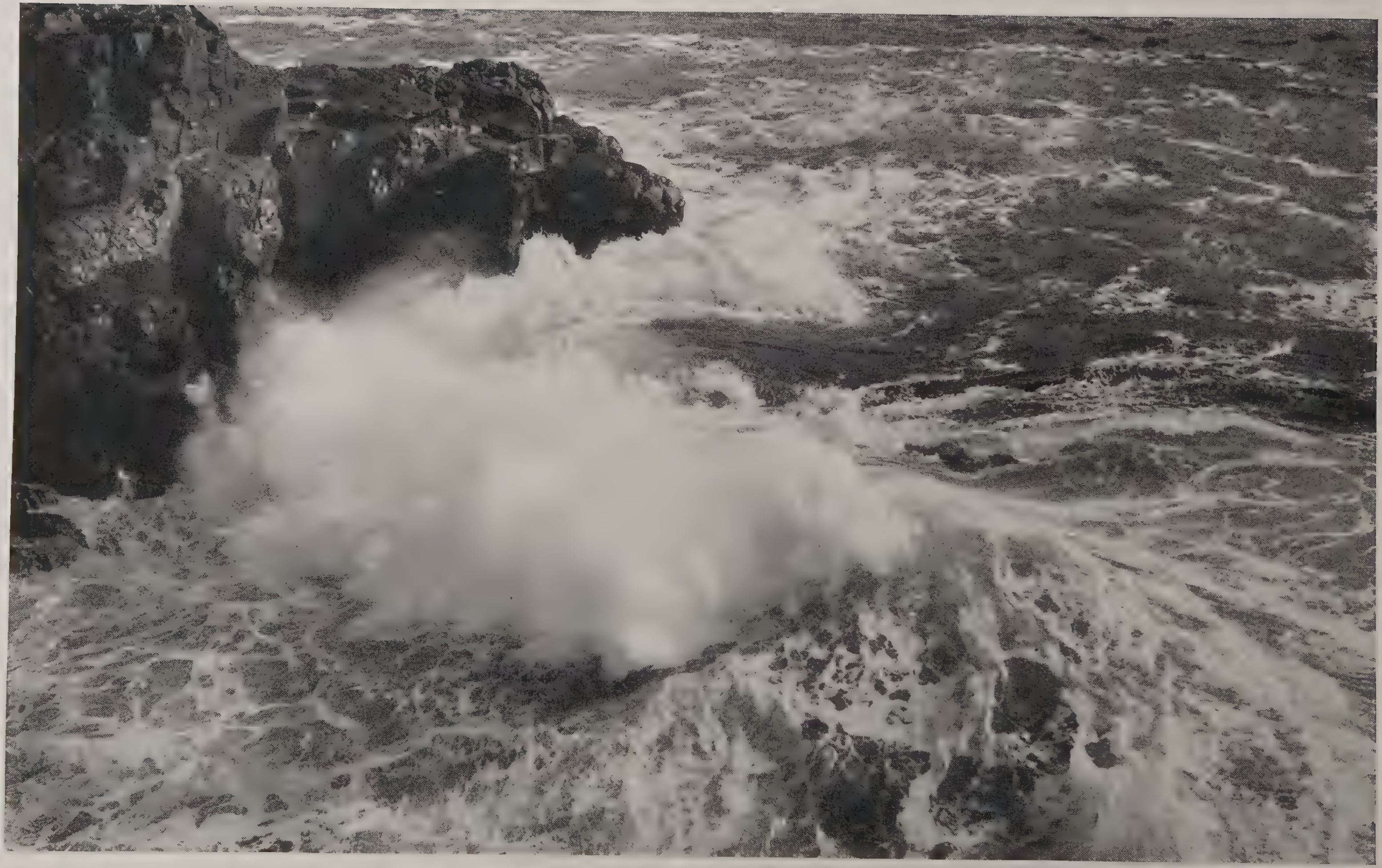
Each of these islands rises from the sea with flanks as sheer as a ship's sides and with a plateau top, flat like a ship's deck. In all The Faeroes there is only one small, sandy beach of a hundred feet or so, a beach which is considered such a remarkable gift of Nature that the big island of Sandö takes its name from the tiny strand.

Basalt cliffs rise majestically on all the islands. Some tower nearly 2,000 feet above the restless sea, and against these black barriers the Atlantic sends her mighty waves, to break with explosive force and burst into probably the most remarkable clouds of spray and surf to be found in all the world (see page 608).

SAFE HARBORS A RARITY

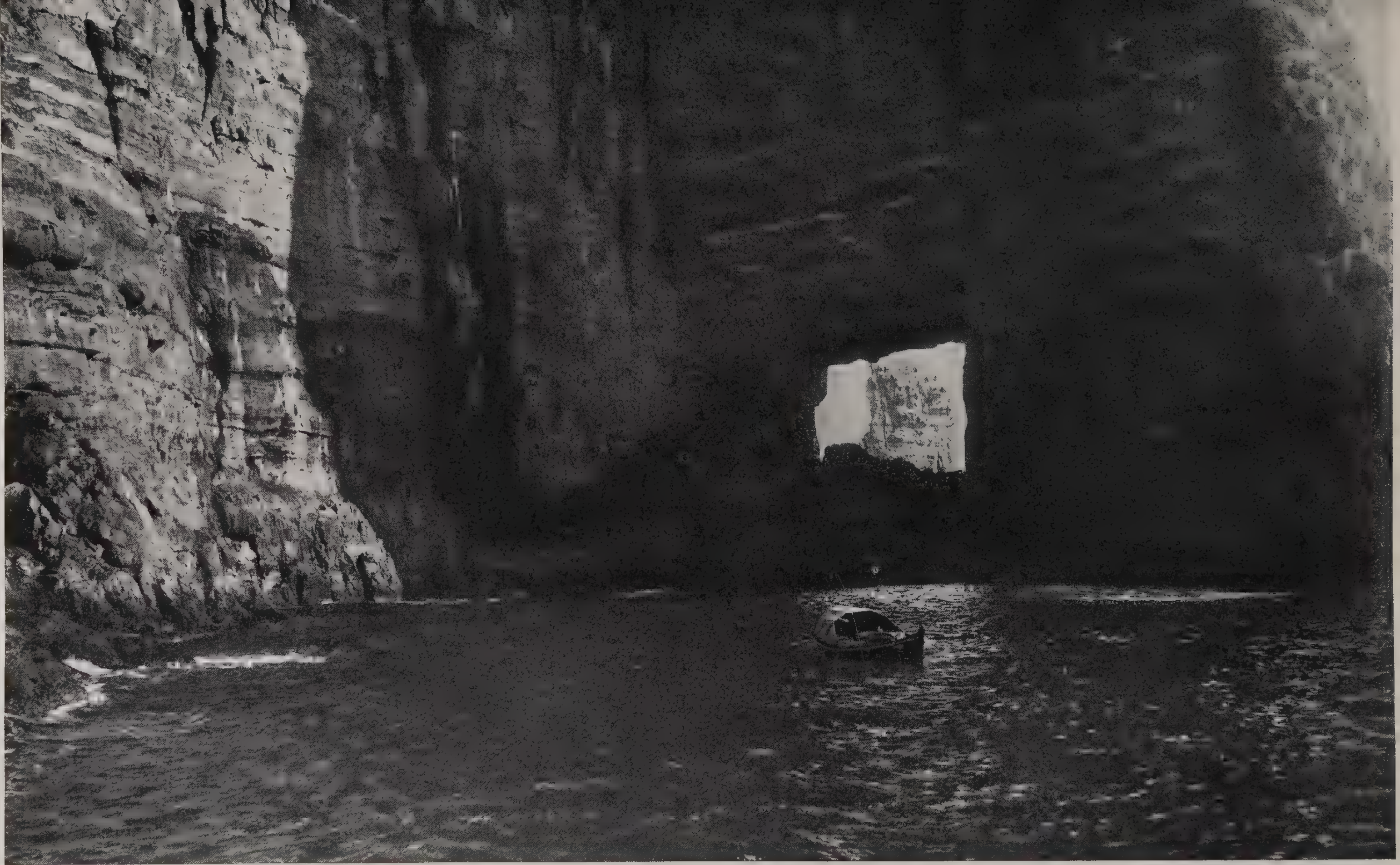
Thorshavn I made the headquarters for nearly 200 trips to photograph the Faeröese people, the astonishing cliffs of their islands, and the populous colonies of sea birds inhabiting those cliffs. It is more accurate for me to say that I "started" on 200 trips, because many were futile. Bad weather in The Faeroes is so very bad, tide rips are so tricky, and safe harbors such a rarity, that often my companion and I were compelled to turn back to our base.

In Carl Bech, the official Government veterinarian in The Faeroes, I found at Thorshavn a staunch assistant, who made possible my photographic survey of the archipelago. He was born in the islands and his early training was such that he swims like a seal and climbs like a mountain goat. Education in the veterinary school at Copenhagen had, however, opened to him a world unknown to the provincial islander. His duties, which require a professional visit to every inhabited island in the archipelago at least twice a year, draw on his boyhood sailing experience as well as his education.



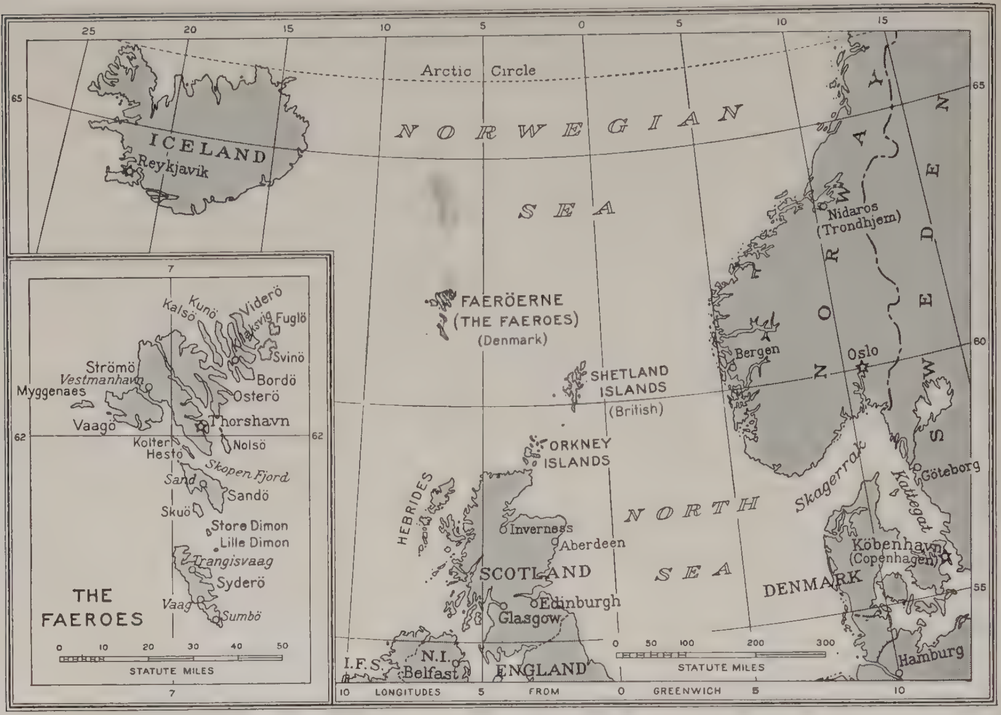
WHEN IRRESISTIBLE FORCE MEETS THE IMMOVABLE MASS OF A FAEROE CLIFF, THE FORCE EVENTUALLY CONQUERS

Nowhere does the sea summon greater power than in The Faeroes. On the tiny island of Kolter giant waves, prodded by furies of the storm, and unable to climb its 1,500-foot ridge, throw their scarf of salt spray over the crest, and winds fling it as far as Thorshavn, six miles away. Up on a Myggenaes bridge, 150 feet above sea level, the surf threw a rock so heavy that two strong men were required to move it.



THE "TUSK" SAILS UNDER THE FAEROE CLIFFS, SOME OF WHICH TOWER TWICE AS HIGH AS NEW YORK'S CHRYSLER BUILDING (SEE PAGE 519)

Carl Bech, official veterinarian of The Faeroes, accompanied the author on his trips through the islands. They traveled in Bech's *Tusk*, a Viking-style native boat in which is installed a 2-cylinder motor and a Viking figurehead. A cover over the bow provides a tiny cabin. The veterinarian has already made the 1,000-mile journey from The Faeroes to Denmark in his 26-foot craft and hopes to cross the Atlantic in it (see, also, text, page 610).


Arctic Circle
ICELAND
Reykjavik
NORWEGIAN SEA
FAERÖERNE
(THE FAEROES)
(Denmark)
SHETLAND ISLANDS
(British)
ORKNEY ISLANDS
HEBRIDES
Inverness
Aberdeen
SCOTLAND
Edinburgh
Glasgow
N.I.
Belfast
I.F.S.
ENGLAND
NORTH SEA
Skagerrak
Kattegat
DENMARK
København
(Copenhagen)
Hamburg
Göteborg
SWEDEN
NORWAY
Nidaros
(Trondhjem)
Bergen
Oslo
0 50 100 200 300
STATUTE MILES
10 LONGITUDES 5 FROM 0 GREENWICH 5 10
THE FAEROES
Kalsö
Kunö
Viderö
Klaksvig
Fuglö
Svinö
Bordö
Osterö
Strömö
Vestmanhavn
Myggenaes
Vaagö
Thorshavn
Kolter
Hesto
Nolsö
Skopen Fjord
Sand
Sandö
Skuö
Store Dimon
Lille Dimon
Trangisvaag
Syderö
Vaag
Sumbö
0 10 20 30 40 50
STATUTE MILES

Drawn by A. H. Bumstead

SEVENTEEN OF THE FAEROES ARE INHABITED

Twenty-two thousand hardy islanders eke out a precarious existence on 540 square miles of storm-swept cliffs.

Most of the 23,000 islanders know Bech as a friend, a benefactor, and one whose courage matches that of any of them; so his introduction brought me coöperation from the natives which I should not have had otherwise.

SURVIVALS OF VIKING LIFE

Soon after I met Bech he took me down to Thorshavn's shore to see his motor boat, the *Tusk*. Once it had been a 10-oared, 26-foot, Vikinglike native boat. The Faeroes were settled by Viking chiefs, and surprisingly many survivals of the ancient life continue to this day. Especially is the influence apparent in the native boat, which is high-sided, narrow, and pointed at both ends.

Bech had carried on the spirit of his forefathers by mounting a carved Viking figurehead on the prow; also, he built over the forepart a cover forming a small cabin, which undoubtedly ruined the *Tusk* artistically, but it once saved our lives. The 20-arm power of ten stalwart islanders, which once sent the *Tusk* flying through the waves, he had replaced with a 2-cylinder motor.

Sufficient proof of the little boat's seaworthiness was established by a 1,000-mile trip Bech made in it from The Faeroes to Copenhagen. Its proud owner declares that he will yet cross the Atlantic in the *Tusk*.

LANDINGS CALL FOR AGILITY

We chugged out of Thorshavn's anchorage one morning bound on our first extended survey expedition. Viderö, the northernmost of The Faeroes, was our destination. When the island came in sight it loomed up impressively, like the companion islands which we had passed en route; another massive cake of stone bounded by wave-washed cliffs—a blue-black iceberg. The *Tusk* floated along under Viderö's sides like a chip in a tanner's vat. It seemed to me that going ashore was like trying to board the *Leviathan* from a skiff.

At last Bech reached a break in the cliffs and piloted the *Tusk* through a gap to a tiny harbor, safe from the wind, but not from the swell, which sent the water splashing against the rock ledges that were to serve us as a landing place. I took off my shoes and in my heavy, waterproof Faeroe wool socks crouched waiting in the bow. Shoes cannot be trusted on wet, slippery rocks. In my hand was a rope. Bech brought the *Tusk* near the ledge. A wave carried the boat up and in 12 feet, 10 feet, 6 feet. I jumped for the rock. Bech threw the motor into reverse, racing backward. Smack, the wave hit the rock, but the *Tusk* was not with it.

I clung to the best handholds within reach and dug in my toes. As Bech backed away, the rope, whose end I held, ran off from the *Tusk's* deck. When my companion had lowered the heavy anchor, the boat swung around to the pull of the outgoing tide. Indeed, to sail among The Faeroes a man must know the tide changes of every inlet and all the strange tricks of the tidal currents among the islands. Seldom did Bech anchor the *Tusk* unless the tide was going out.

Now came my part in the difficult process of landing. I pulled on my rope, bringing the stern of the boat near enough to shore to permit Bech to pass over the cameras and luggage. Then he made the jump ashore and I slackened the rope, permitting the *Tusk* to ride at a safe distance.

IT IS HARD TO KEEP DRY

That is how we landed on Viderö and on every other island, and how the natives themselves land, if everything goes well. Three times in the course of our expeditions, however, my jump was too short or the rocks were too slippery. Into the cold water I plunged. Bech was ready always for such an accident. Quickly he would pull on the landing rope, to which I held firmly. Thus the *Tusk,* moving out, dragged me away from a battering on the rocks, and in deep water I would climb aboard once more. Wetting was not pleasant, of course, but since in The Faeroes it is impossible to keep dry, once away from a town, I learned not to mind being damp. After a submergence I always dried off to my usual degree of dampness in the sun or beside a campfire, if we were in the hills or at a farmhouse.

In one tiny, rock-walled harbor inlet we were not so fortunate. Bech was making

SAILING UNDER A NATURAL BRIDGE

Layers of lava rock laid down by old volcanoes are occasionally interrupted by rock wedges or dikes of different consistency. Pounding surf wears away the dikes first, opening great caves or carving deep, fjordlike inlets which provide sheltered landing places.

EVERY FAEROE GIRL LEARNS TO KNIT, EVERY BOY TO ROW A BOAT

a professional call to treat a sick pony. He ran the *Tusk* to a bottleneck inlet and, while I stayed with the boat, he jumped ashore and went up the hill. A few minutes later he saw one of the sudden storms bearing down. Deserting the pony, he began to run for the boat, sliding and tumbling 150 feet, directly into the cockpit. There was no time to lose. We headed full speed for open water, but a gust of wind and a wave hit us at the inlet entrance. It threw the *Tusk* toward the rocks.

Beck shouted to me. We both jumped over the side of the boat. With our fingers clutched on the gunwale and our feet against the rocks, we held the boat off until the backwash carried us out. Quickly we hauled aboard, got the engine going, and rushed out to sea, where there was no wave the *Tusk* couldn't ride.

Our arrival on Viderö was unusual, since the island is probably the bleakest of them all and therefore visitors seldom land here. But the effort pays, for there the dwellings are of the most ancient type, customs have been handed down unmodified, and it is such a colony as Leif Ericsson might have planted.

There is no town; not even a store. Low stone farmhouses, half sunk in the ground and girded by outer stone walls to escape the violent winds, cling to the barrens. Sheep graze at will.

THE SMOKE ROOM HARKS BACK TO VIKING FEAST HALLS

So poor is Viderö that only one house, that belonging to the schoolmaster, a very great man indeed, has a "glass room." Such an extravagance is not for the average Viderö dweller, who lives with his family in a "smoke room," or a converted smoke room. The smoke room, which was once typical of all rural homes in The Faeroes and still survives in many, harks back to the feast halls of the Vikings. Usually it is large, since it is often the only room in the house, except the stable below it for horses and cows, and must serve for the entertainment of the neighbors as well as for all family uses. Around the room there are no windows; only the entrance door and those that open on the original "Pullman beds," which may be single- or double-deck.

THORSHAVN NOW BOASTS A HIGH SCHOOL

The Faeroes are neither a source of income to Denmark nor a market of any importance for Danish goods. Nevertheless, the mother country works consistently for The Faeroes, extending educational and medical services, promoting communication and the marketing of codfish.

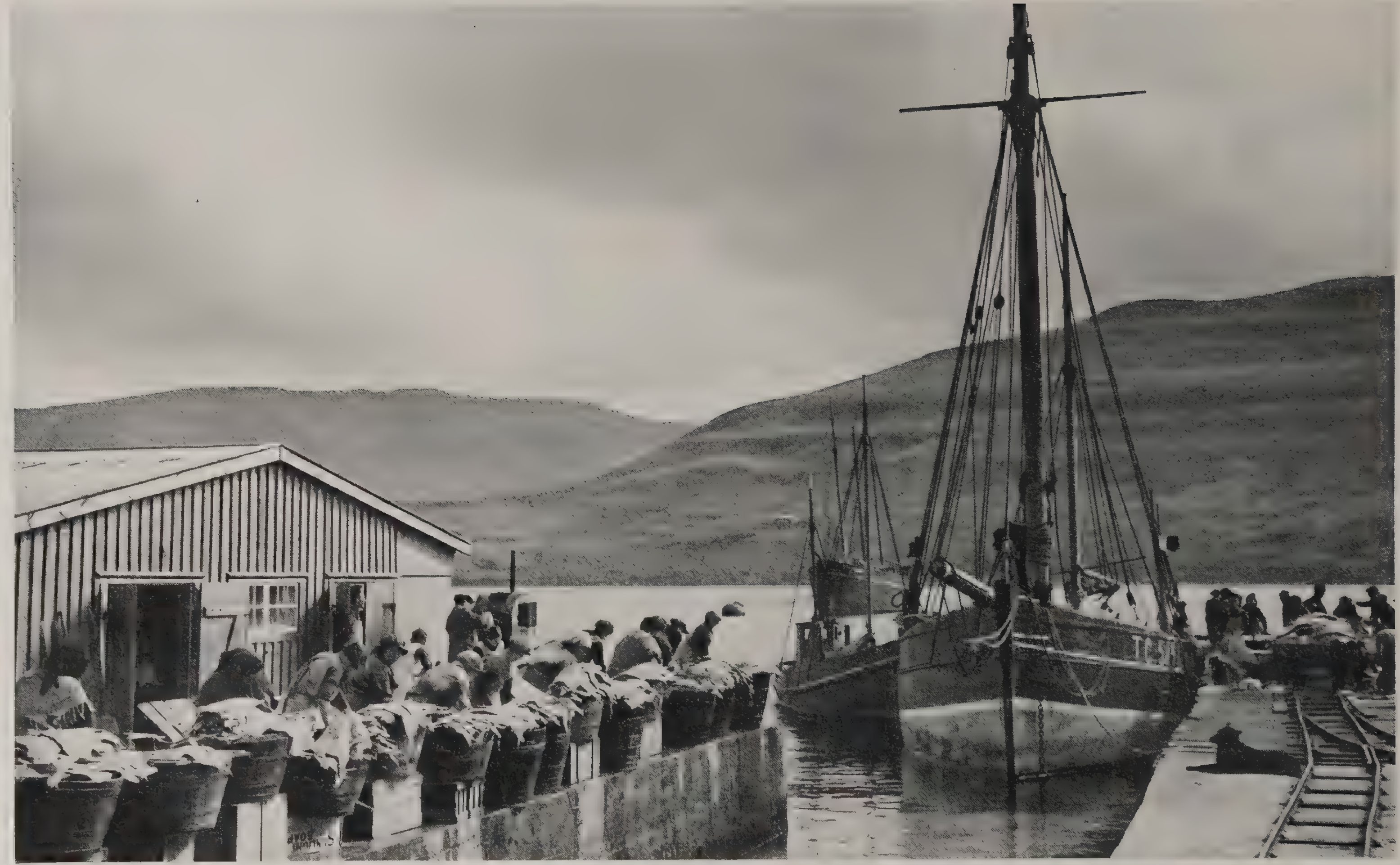
A NEW BRIDGE VITAL TO THE FAEROES' ROAD SYSTEM

Two automobiles, both American, have been brought to the islands. The longest trip that can be made in them is two miles, on a narrow road out of Thorshavn. What gondolas are to Venice, rowboats are to The Faeroes.

A NEW HOSPITAL SERVING ALL THE FAEROES OVERLOOKS THORSHAVN'S BAY

ACRES OF CODFISH, BUT NONE TO EAT

"In this citadel of the cod I foolishly tried to get some to eat. My request was regarded as outlandish. It is all very well to sell cod, but it is much too costly to eat" (see text, page 634).



EVERY DAY IS WASH DAY THAT THE FISHING SHIPS COME IN

Women bent over tubs scrubbing, not clothes, but the firm, white flesh of freshly caught codfish, are a common sight on Faeroe wharves. Spain, Italy, and Argentina are the principal markets for the catch.

A COD FISHERMAN LANDS A HALIBUT

Occasionally the man who throws his hook and line overboard for a 5- to 25-pound cod pulls up instead a halibut that may weigh as much as 600 pounds. Although the name, The Faeroes, means the Sheep Islands, the natives are more dependent on codfish than upon their flocks for a "money crop."

In the center of the room stands a low stone forge on which burns peat or, rarely, brown coal, and above the fire hangs a wooden chimney, which carries some, but not all, the smoke to the outside air. Converted smoke rooms with modern improvements boast a stove where once the open fire gleamed, and a skylight glass window where once an aperture in the roof, uncovered in good weather, sufficed to admit light.

A visitor's streaming eyes give him evidence enough why the old communal living room is called a "smoke room." Around the hearthstone—entirely around it, in fact—sit the family and neighbors on benches. When for days at a time storms blot from sight the other islands, the ocean, the neighbor's house, and even the rock wall a few feet from the door, then the family circle draws still closer to the peat fire within the shuddering house.

Women knit homespun wool, and all sing the sagas of Faeroe history that have been transmitted word by word, line for line, from generation to generation, down the centuries. The favorite Faeroe saga has more than a hundred verses, and he is a poor islander indeed who cannot recite all of it.

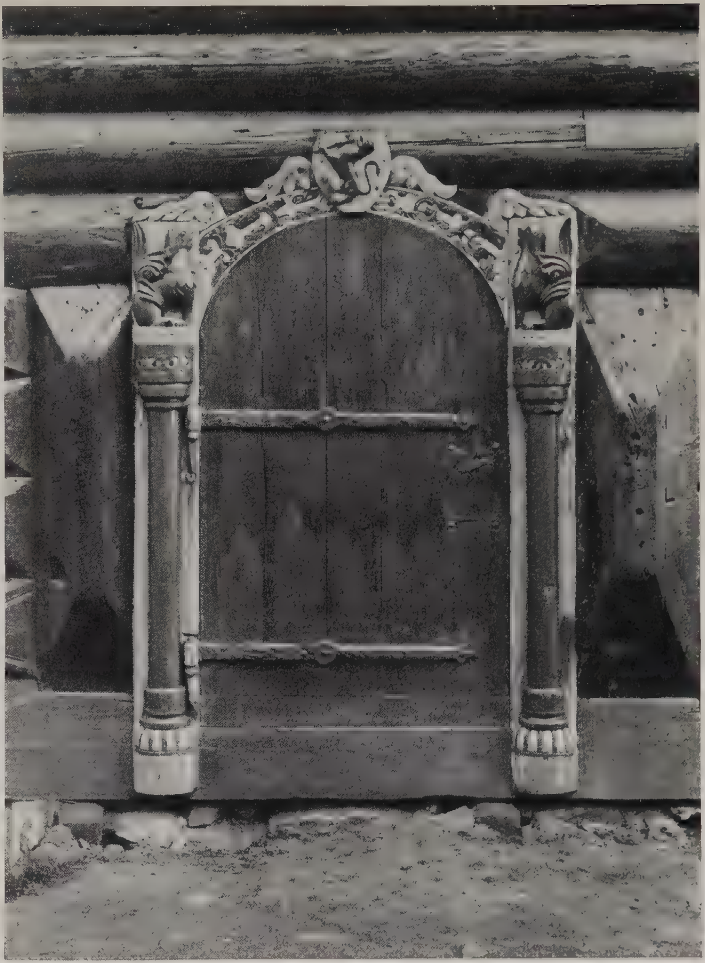
While the schoolmaster has his "stove room" and is the only man of Viderö with a glass room, nearly all the farmhouses on Strömö have glass rooms, and in Thorshavn itself the communal stove room has been left out in the new, graceless concrete houses.

A glass room is an appendage of the smoke or stove room, having glass windows. Usually it is a parlor and, like parlors of an earlier day, can be used only on state occasions—for a funeral, for a marriage, or the reception of a special guest. Generally the unused parlor contains the family's only furniture, such as a table, a few chairs, a vase with paper flowers, and religious pictures on the wall.

"HIGH" MEAT PREFERRED

Frequently the glass room was opened for me, but I preferred the family living room, with its warm stove, to these parlors, which gave forth the cold, musty odor of a cellar closed for many years.

The stove room serves, of course, as the dining room, and often I joined the islanders at their meals and ate their food. Sheep, fish, and whale are staples with them. The first two are common enough to most peoples. Still, the method of preparing the food for the table in The Faeroes scarcely recommends it to the fastidious, and my experience among the Eskimos in Alaska and northern Canada stood me in good stead when I was invited to share a Faeroe sheep.



SCALDS, VIKINGS, AND MISSIONARIES ENTERED HERE

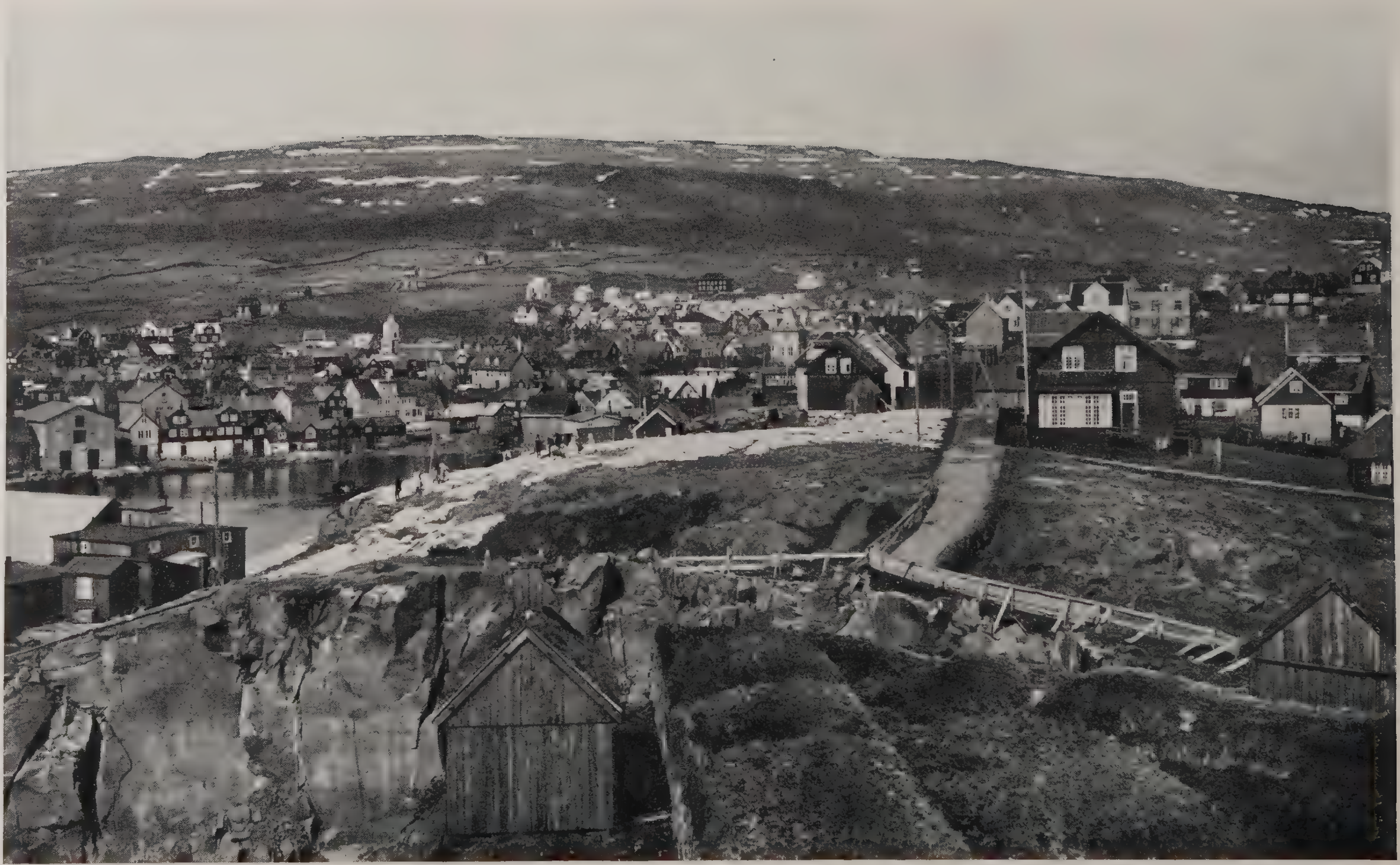
Kirkebö's farmhouse, that was built to shelter a bishop 900 years ago, receives visitors through its old Norse doorway, built by contemporaries of Leif Ericsson. More accustomed to carving dragons than crosses, the artisans sculptured sea beasts instead of religious emblems to guard the bishop's doorstep (see, also, pages 621-623).

Like most primitive northern peoples, the islanders prefer "high" meat, and to satisfy this desire they hang a skinned sheep in an open shed for about a year before eating it. The carcass acquires a crust like Camembert cheese. This is pared off, each man using the knife which he carries constantly. The highly toned meat beneath the crust the natives eat raw.

Similarly, whale blubber must season for a month or more before the family makes high feast. Other seafood, however, receives different treatment. Newly caught fish are cleaned and dried and dried and dried—until they become so hard that one's teeth can make no impression. But with a stout hammer the islander will powder his durable codfish on a stone and eat its dust, so to speak.

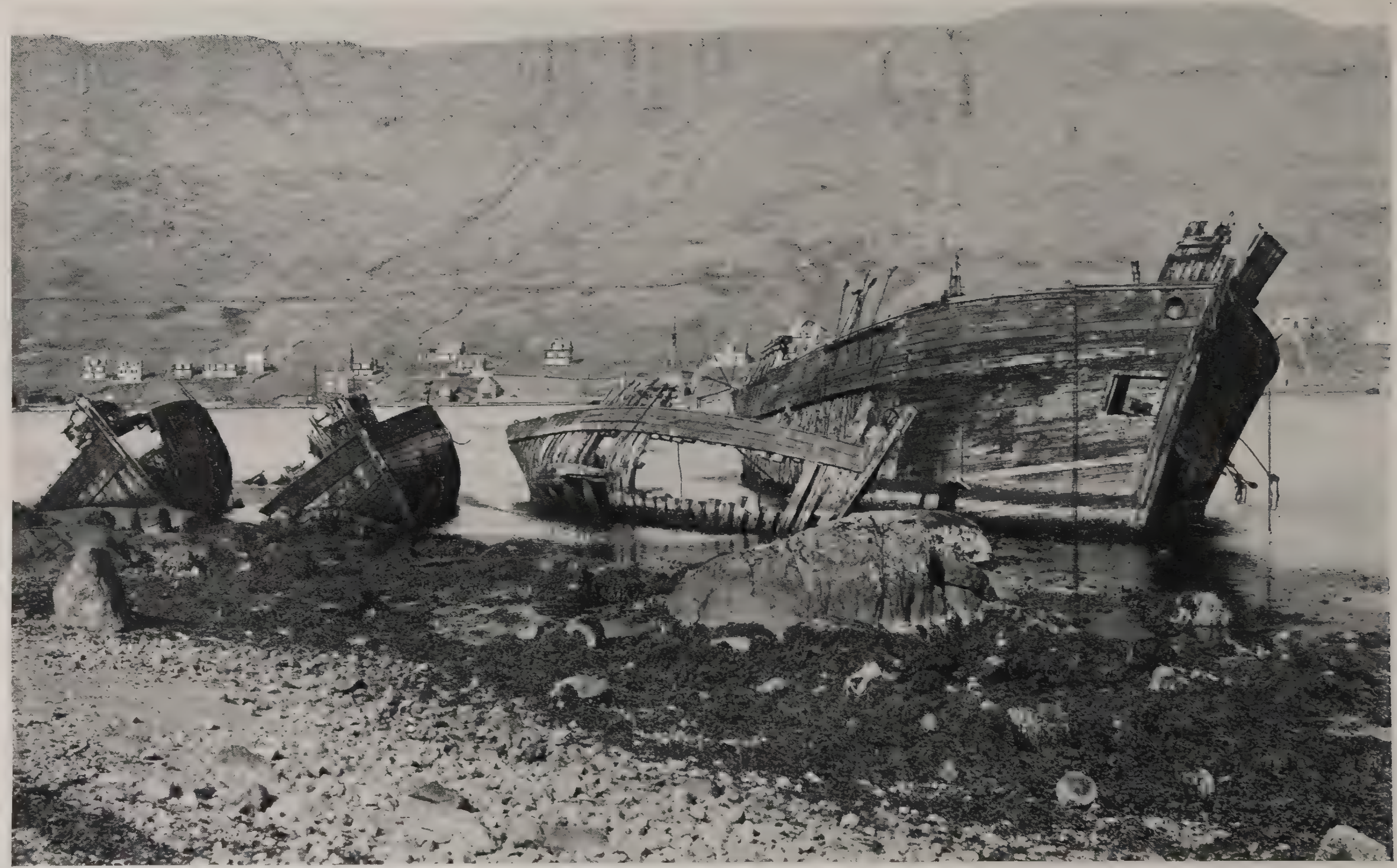
No one, they say, goes to Myggenaes, the westernmost island of The Faeroes, unless the trip is necessary, for it has the most violent surf. But the island is one of the nesting places of the *sule,* or gannet; so I found it necessary to go. In eight hours from Thorshavn, Bech and I reached a miniature fjord on the south side of Myggenaes and I leaped ashore. After he had anchored the *Tusk* we climbed up the cliff with the cameras.

Now, Myggenaes consists of a main island, supporting about 125 inhabitants, who raise sheep and catch fish. Cursed it is by winds and waves, for the storms that leave Newfoundland and Greenland gather all their forces and loose them here. The rest of The Faeroes and Europe get



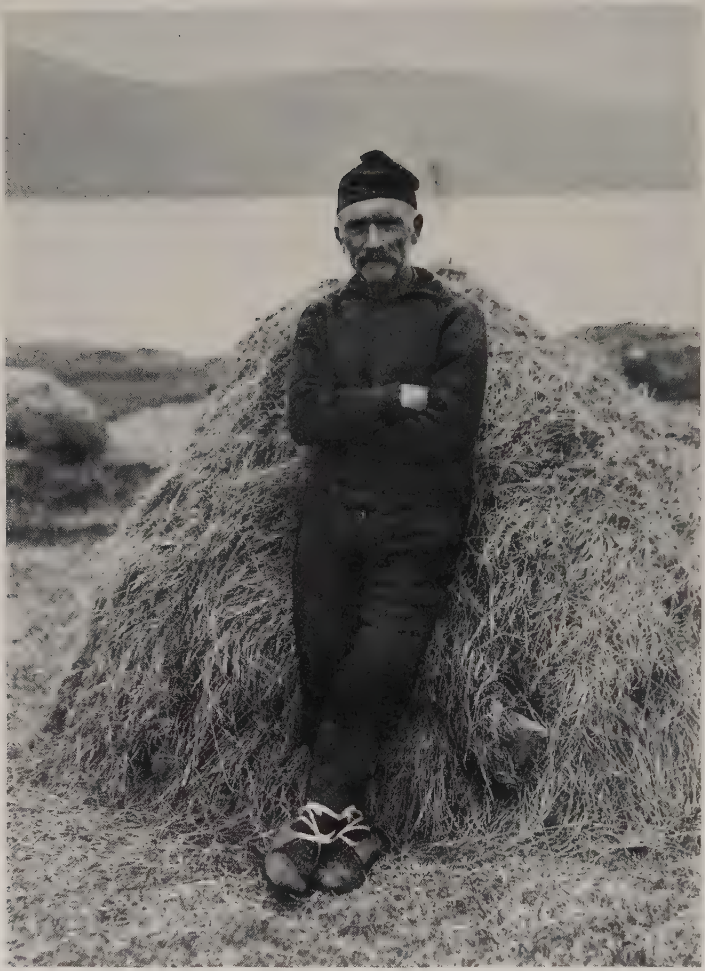
THORSHAVN, CAPITAL AND CHIEF PORT OF THE FAEROES, VIEWED FROM THE FORT (SEE PAGE 606)

The old part of Thorshavn is picturesque, crowded, cluttered, and slightly dirty; the new part hygienic, modern, and less picturesque. Corrugated iron roofs of the new buildings may be better to live under, but they cannot please the eye like an old sod roof colorful with green grass and flowers. Although all wood must be imported, the islanders follow in the footsteps of their Viking ancestors, building homes of timber instead of native rock. Even the chimneys are of wood.



MURMURING TIDES SING DIRGES THROUGH THE SKELETONS OF DEAD SHIPS

Once stout vessels rot in Thorshavn's graveyard. Tide rips, blanket fogs, and black gales out of the west bring many snug fishing craft to a quicker but less peaceful end under The Faeroes' skyscraper cliffs.



PROUD OF HIS ROCKY ISLAND AND ANCIENT LANGUAGE

Higher wages and an easier life on the continent cannot lure the Faeroe farmer from his sod-roofed house, his thin soil that will grow no grain save barley, and his flock of sheep that suffers as much as he in the gales that spray the black rocks and pastures with the salt spume of a raging sea. When he cannot find a sheep, he knows what has happened: the wind has blown it over a cliff.

the storms later; Myggenaes gets them first and worst.

At the very western end of the island is a *holm,* or islet, separated from the main block by a crevice 75 feet wide. At the outer point of the detached piece stands the westernmost lighthouse of The Faeroes. Its beacon blazes out 413 feet above the sea. At the foot of the lighthouse cliff, their foundations melting year by year in the tossing waters, are two pinnacles of rock on which in summer the gannets nest.

Passage to and from the lighthouse islet and mainland has been made possible by a cable bridge over the crevice 150 feet above normal water level. The mighty power of the cliff-climbing waves that pound Myggenaes is suggested in the fact that the railings of this bridge have been battered out of shape by rocks pitched against them by the crashing seas in winter storms!

We crossed the tortured bridge and picked our way along the path to the lighthouse. It led along the face of the cliff, where a misstep would send one into the boiling, writhing waters below. Occasionally a railing, but more often a rope, afforded safety on the path, and at last we reached the lighthouse.

It was operated by a Dane, who lived with his family in a house sheltered behind the lighthouse rock. The keeper told me of the awesome storms of winter, when a screaming, whistling blackness descends on the island and the sea lifts up higher, higher, and higher on their rock; when the suffocating blast of stinging salt spray that no living creature can stand against rages mercilessly.

But more telling even than his descriptions was the kerosene lamp which hangs from the ceiling of his living room. It has a large globe with a hole on either side, as if a shot had passed through. During one winter storm, he said, a wave that rose up the cliff dashed over the precipice a pebble, which broke his window, passed through his lamp, and struck against the wall! He showed me the water-worn stone, which he retains as a keepsake.

THE FAEROES ARE DISSOLVING IN THE SEA

Myggenaes and the other islands are of stout basalt, but the power of the waves constantly wears them away. The attack of the sea, coming chiefly from the west, has split off the rock more on that side; so The Faeroes' highest cliffs face the advance of the waves, and here daily is enacted one of the most violent dramas of Nature—the ceaseless, relentless assault of the breakers on the braced shoulders of rock. Unequal though the battle may seem, The Faeroes are dissolving in the Atlantic surf like sugar in tea. I was shown a rock needle which would scarcely give foothold to a mountain goat; it was all that remained of an island that had supported, within the history of the islanders, a thousand sheep.

A STONE CARVED WITH THE CRUCIFIXION SEALS THE KIRKEBÖ CATHEDRAL RELIC CHAMBER

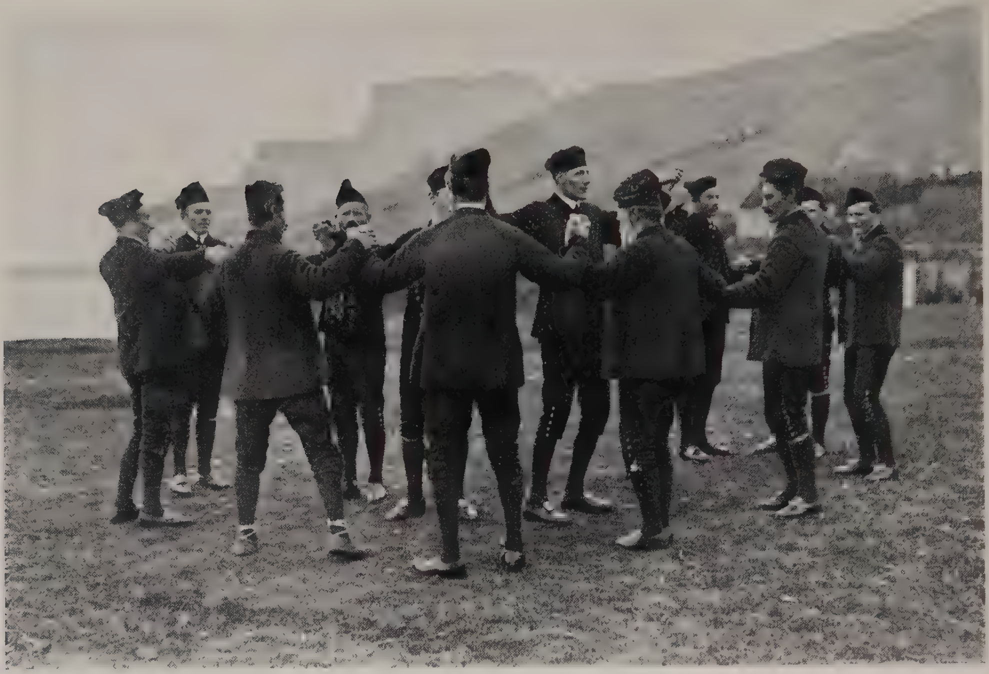
Denmark wanted for a Copenhagen museum a leaden box and its contents found when a relic chamber was opened here a few years ago. Faeroe protests resulted in the resealing of the niche with the contents intact. Kirkebö is a village a few miles west of the capital city, Thorshavn.

On one rare, calm morning we rode out beyond Myggenaes lighthouse to the pinnacles where the gannets nest. Up the rock climbed a skilled islander carrying a rope, which he fastened aloft, permitting us to scramble after him with comparative ease.

The first man up has such a dangerous task that I asked, since I knew they climbed it each year for birds, why they did not fasten a permanent cable to the rock. They replied that more than once they had fastened such a cable, but the waves in winter always washed it away. Once they fastened an iron chain to the pinnacle, but that, too, was carried off. Each nesting season these gannet eyries are covered with guano and, although the breeding places stand 150 feet above the sea, waves wash the rocks clean every winter.

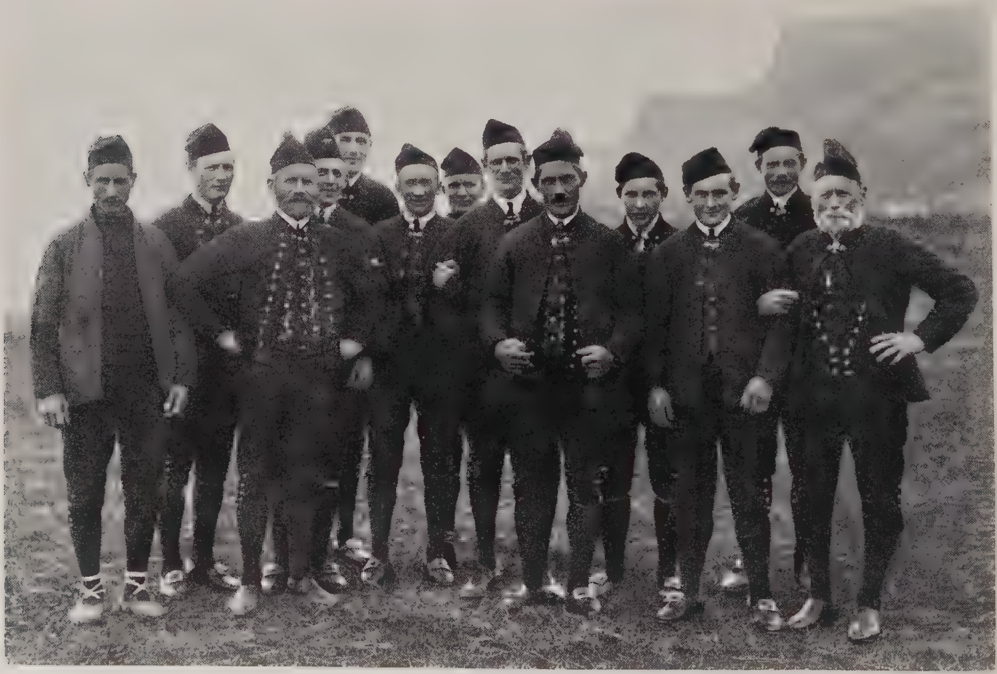
AT THE MERCY OF A CAPRICIOUS FAEROE WINDSTORM

Toward the end of the fifth day on Myggenaes the sky began to darken, so Bech and I put out in a hurry to beat the storm to Thorshavn. We had no desire to remain cooped up on Myggenaes



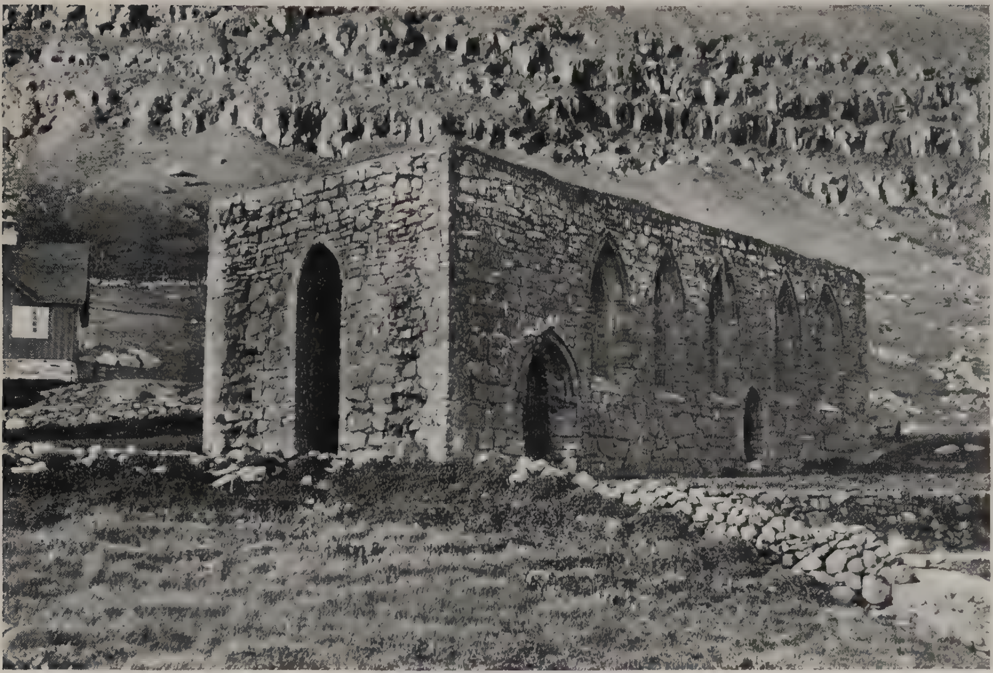
A SUNDAY DANCE

Faeroe history in 200 verses, sung to one tune, without instrumental accompaniment, is the music for the native "Paul Jones." While they sing throughout the night, the dancers shuffle from left to right, sometimes slow, sometimes fast. Women are admitted to the party, but usually keep to their own sector of the circle.



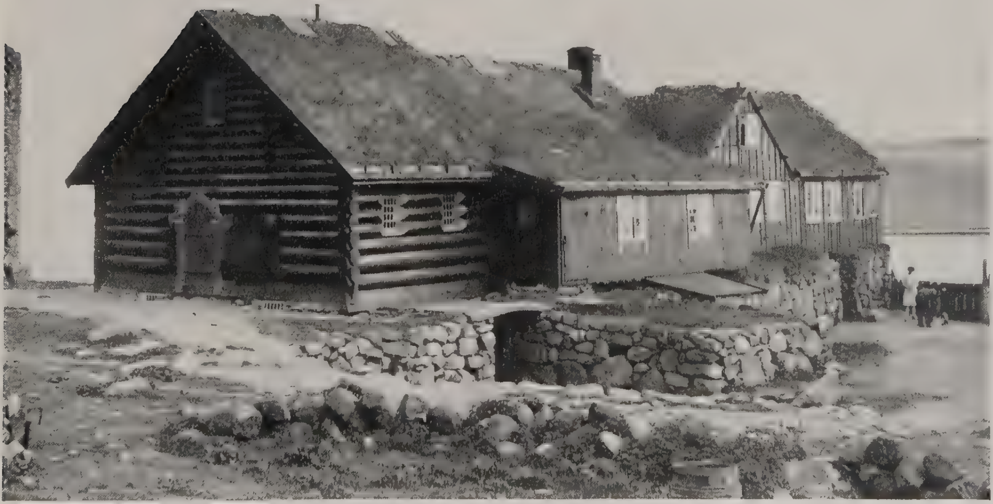
MEN CLING TO OLD FAEROE STYLES MORE STEADFASTLY THAN THE WOMEN

Shoes with buckles, black knee breeches, and short jacket, decorated with rows of bright buttons, and a soft wool "liberty" cap striped red and dark blue or black, are the vogue for Sabbath and holidays. The man on the left wears the workaday sheepskin slippers tied with woolen strings.



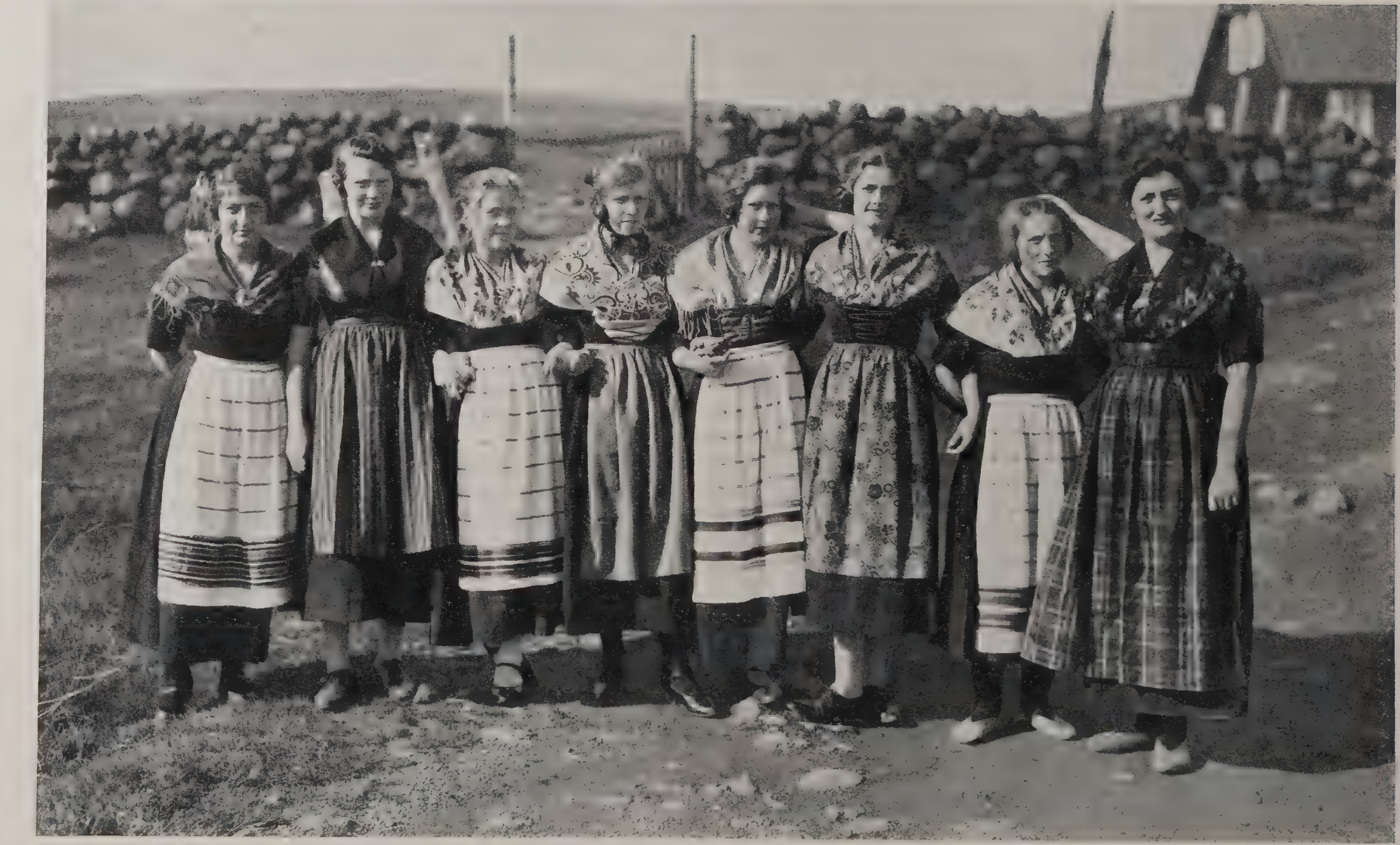
RUINS OF THE FAEROE CATHEDRAL AT KIRKEBÖ

Built in staunch Norman style, with walls 4½ feet thick, the edifice has withstood wind and rain for 800 years. According to legend, the cost of erecting the Cathedral provoked the islanders to kill the bishop and no other has ever taken over the post. Faint traces of Viking dragon heads can be seen in the stone ornament (see, also, illustration, page 621).



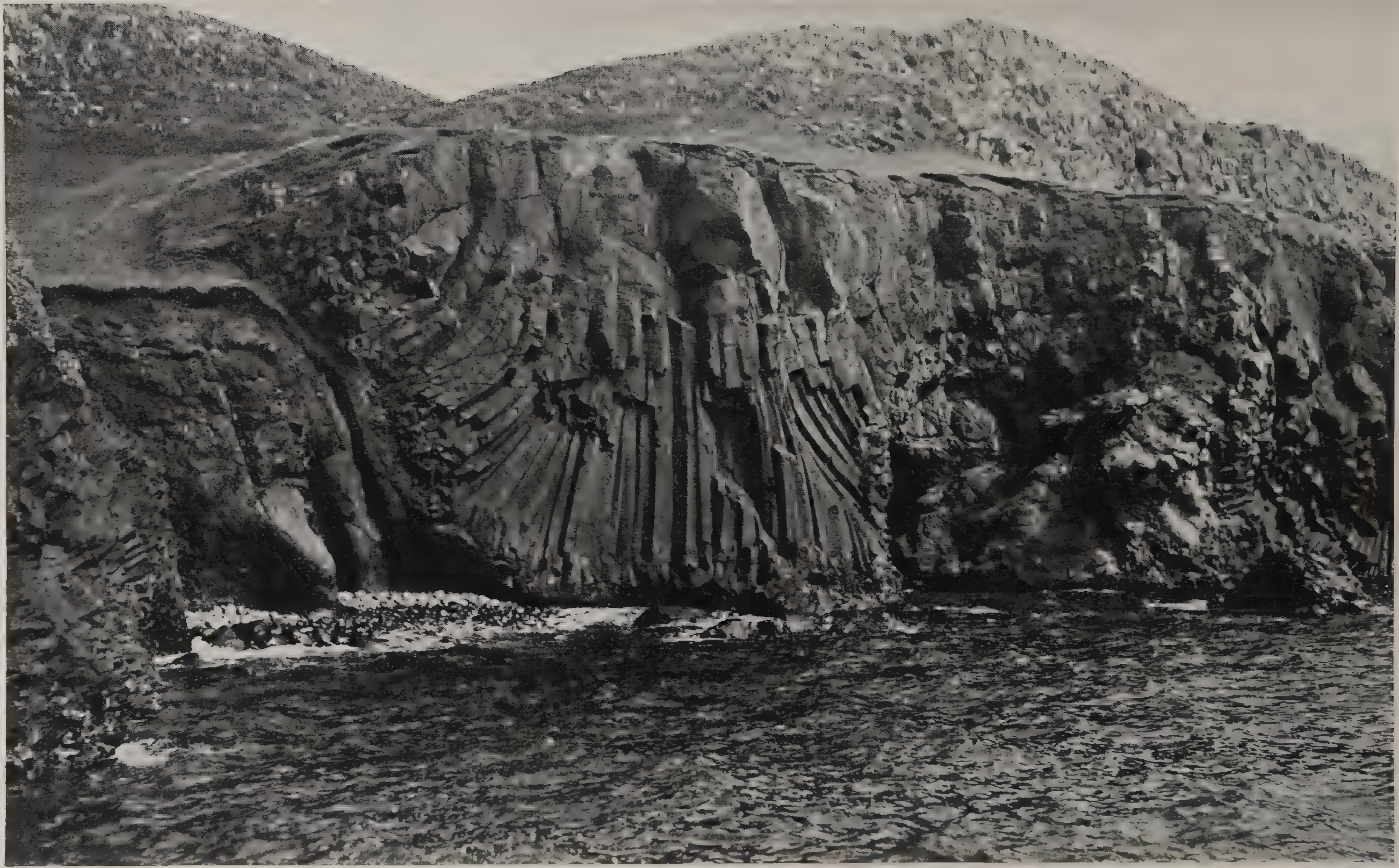
A FAEROE LEADER LIVES IN THE OLD BISHOP'S PALACE

Close to the Cathedral ruins at Kirkebö stands one of the oldest dwellings on The Faeroes. Its walls of timber, hewn by yellow-haired Vikings 900 years ago, have never weakened. Here was organized the theological college whose students went forth to preach Christianity to Norsemen who had worshiped Thor and Odin.



RUGGED LIVING DIMINISHES NOT A WHIT THE NORSE BEAUTY OF FAEROE WOMEN

Spinning, dyeing wool, weaving, knitting, cooking, washing and drying codfish, carrying on when their husbands and sons are killed on the sea or on the cliffs, are the lot of native mothers and daughters. Their only amusements are saga singing in wintertime and dancing the native dance. Often, when storms howl down on the islands, blotting out even the rock walls barricading the house, entire families hug the fire for weeks at a time, never venturing outside.

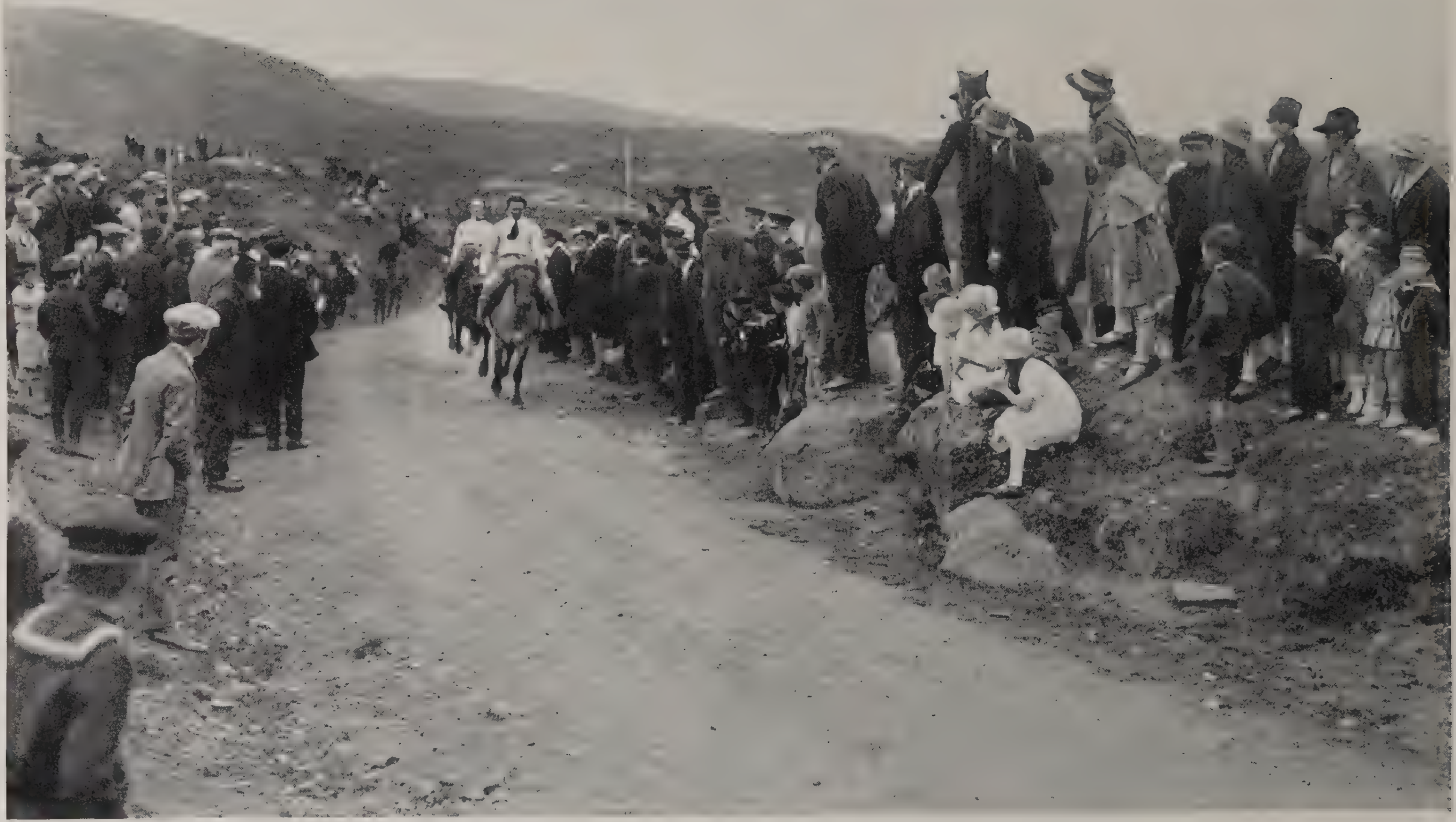


A GIANT FAN OF BLACK BASALT ON SYDERÖ

Æons ago a chain of volcanoes from northeast Ireland, through Scotland, the Hebrides, Shetland Islands, The Faeroes, and Iceland, spewed out lava. The Atlantic's ceaseless attack has chewed at the land masses until, in The Faeroes, a once broad, high plateau is reduced to 22 diminishing islands with a total area slightly less than half that of Rhode Island.

STORE DIMON'S LONE DWELLING FACES A WILD AND SOMBER SCENE

The world is a narrow strip compressed between a leaden sea and a leaden sky. The front yard of the island's single home ends in a precipice that drops sheer 600 feet into the Atlantic. Lille Dimon beyond is an uninhabited rock.



THE ISLANDERS HOLD THEIR DERBY ON JULY 29, A NATIONAL HOLIDAY

Amateur jockeys in white shirt and necktie, atop diminutive ponies, gallop down the home stretch in something less than 2:40. Faeroe ponies, survivals of the Celtic pony, more common in the Shetland Islands and Iceland, eat fish heads when they cannot get grass. Syderö shepherds frequently use ponies to drive their sheep. There the natives trained them, according to one early account, to ride down a sheep and hold it fast between the forelegs until the shepherd could dismount and take charge of the animal.

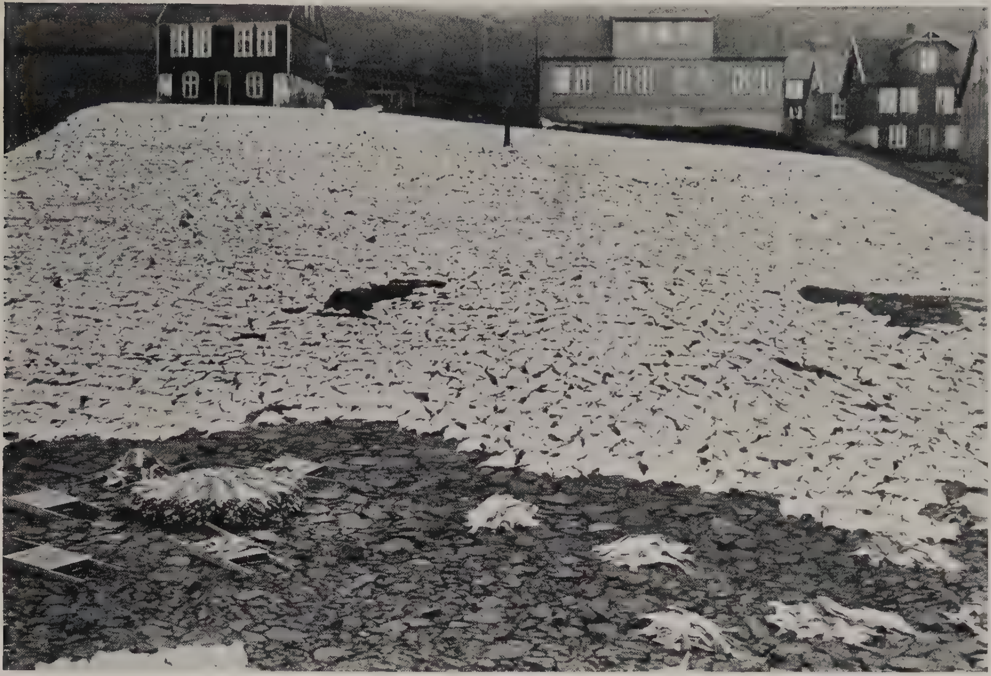
MEN ALSO SPIN AND COMB WOOL WHEN WINTER LOCKS THE DOORS

one or two months, as visitors there often have been detained. But the storm overtook us before we had rounded the north end of Vaagö. We went by the north passage to keep in the lee of the island, and yet the course nearly cost us our lives, because we ran afoul a capricious Faeroe wind. I had read of this wind in the lee of precipitous islands that acts like an angry waterspout, or like the worst eddies around the corners of giant skyscrapers during fierce gales, and I had heard the natives tell of it. This was my first, and very nearly last, encounter with its furious blasts.

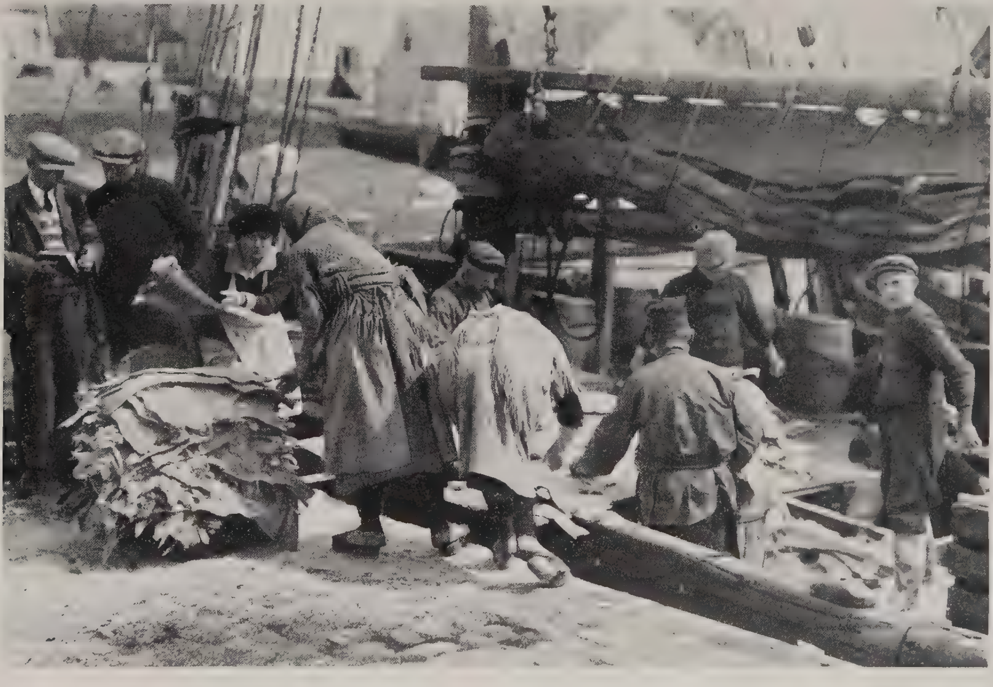
Vaagö contains very high land. The gale struck the west side and blew upward over the top and around the sides. I cannot fully account for the forces at work, but we would find ourselves and the *Tusk* in the midst of a fountain of sea water, a veritable cataract upside down, that would rise straight up 15 feet or more from the surface of the sea. Again it would spray us from the side, as from some mammoth nozzle, or as if some playful giant, bathing, had deluged us by "scooting" water with the palm of his hand.

At any rate, the gusts repeatedly drenched the boat with water. We bailed for dear life. The covering Bech had stretched over the front half of the *Tusk* threw off part of the deluge and probably saved us from the dread fate which has carried many islanders in open boats to their deaths.

But the waterspout wind was only the first obstacle in our handicap race with

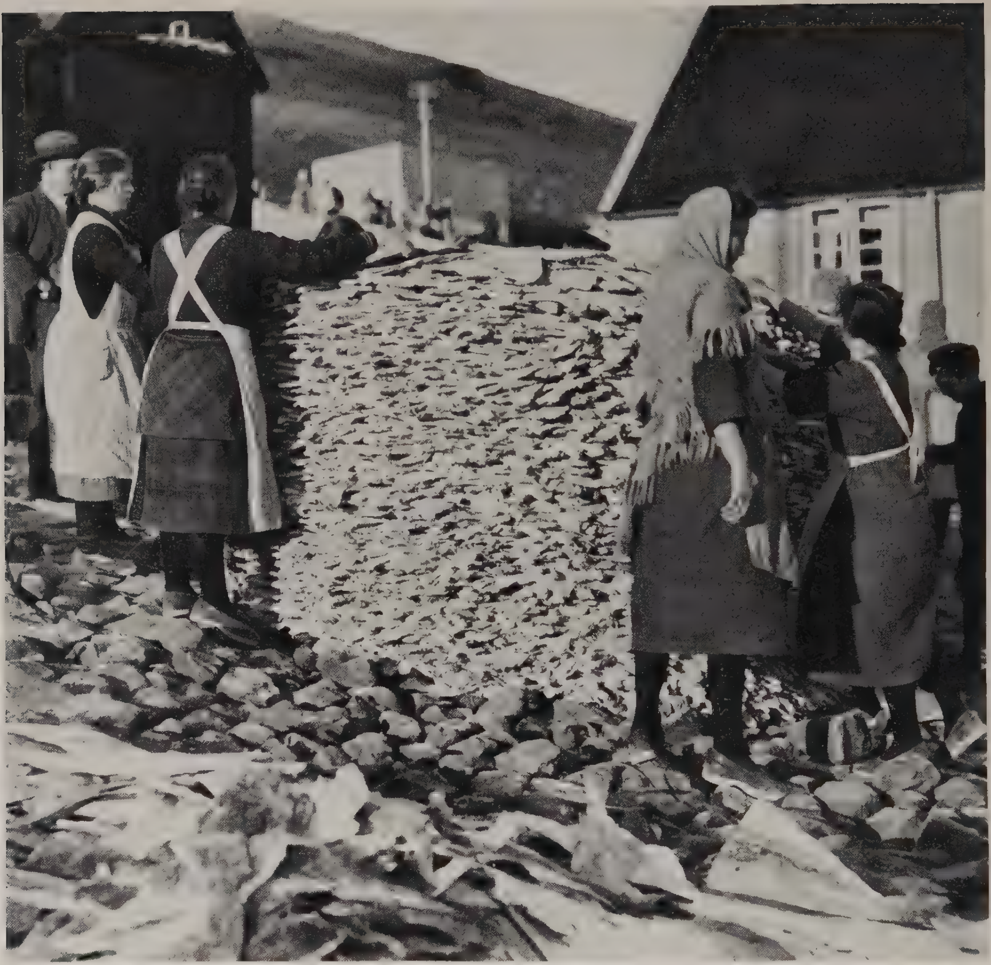


LIKE SHINGLES ON A ROOF, DRYING COD COVER THE BEACH AT TRANGISVAAG



THE SMELL OF FRESH SALTED COD PERVADES THE WHARVES

When the men bring in their fresh, cleaned catch their work is ended. Faeroe women unload the ships, wash the fish, and, with the help of old men and children, dry it in the fitful sunshine (see, also, text, page 633).



IT TAKES TWO MONTHS TO DRY A CODFISH IN THE FAEROES

When the sun comes out, everyone hurries to spread the slabs of fish on the stony beach. Every evening and every time rain threatens, the fish must be stacked up again, under shelter.

fate. We were still far from Thorshavn, on the opposite side of Strömö, which takes its name, meaning Stream Island, from a swift tide rip which passes between it and Vaagö, and therefore on our course. In these narrows the current has been known to run 20 miles an hour and to hold steamships striving against it immovable.

As we rounded Vaagö, escaping the gusts, we met the contrary tide rip and it took us 15 hours to make a passage of a few miles.

By this time it was dark again. Rain and snow beat down on us. We had to feel our way through the space open to the storm between Vaagö and Sandö (see map, page 610).

Bech kept the *Tusk's* nose into the mountainous waves and we made the passage south, laboriously moving sidewise like a sand crab; now racing the motor, now running slow, now scaling a feathery-topped roller, now zooming down into a black, bottomless void, now bailing, now watching anxiously the dangerous white line of surf.

Aboard the *Tusk* was some raw sheep meat, which we ate hungrily. Our fresh water was soon exhausted, and the salt water in our mouths, noses, ears, and eyes—everywhere, penetrating salt spray—made us desperately thirsty. Fortunately, the gasoline supply held out, else we should have been dashed to pieces on Strömö in the

BRACED STONE WALLS DEFLECT THE VIOLENT WINDS

Sudden blasts can blow on one small area with hurricane pressure, while a candle a few yards away will burn with an upright, steady flame. The washing in front of the Store Dimon farmhouse hangs on steel reinforcement wires that give to walls made of cemented stone six feet thick additional support against erratic gusts (see, also, illustration, page 626).

white breakers that roared above the sizzling whitecaps and the singing rainblast.

A STEAMER MISTAKES THE SHORE

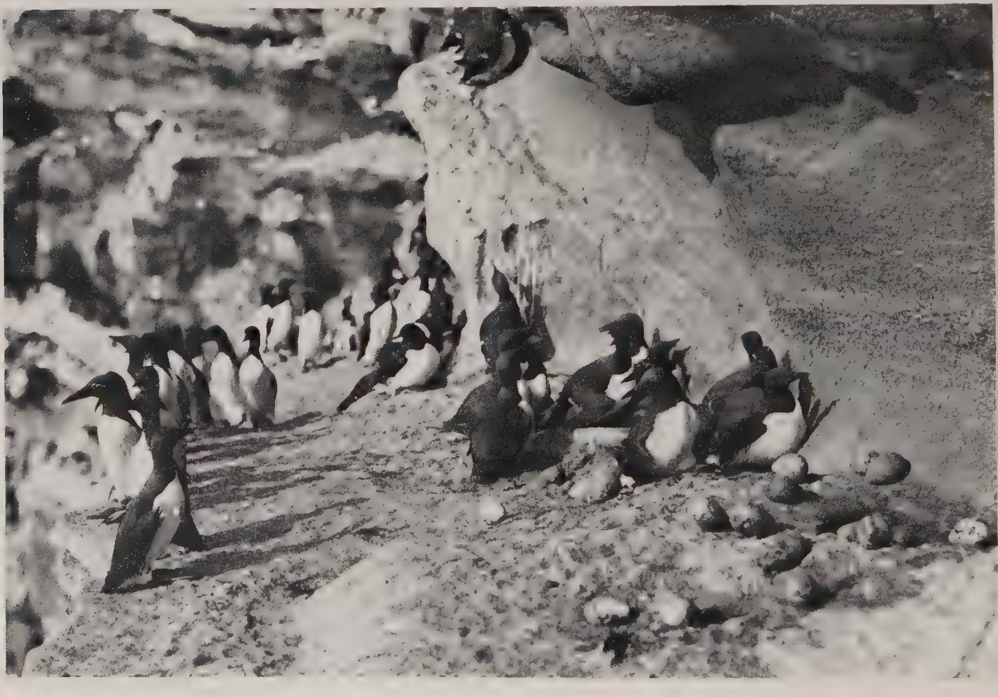
Early in the dark dawn of the second day we rounded Strömö's south point and in the mist made out a steamer. We saw that the captain, although he was maneuvering with infinite care, had mistaken Sandö for Strömö and was in imminent danger of piling his ship on the rocks. To shout was useless. We tried signaling with a hand flashlight. They did not see us. Still the steamer continued to sound its siren, waiting for the echo from the cliffs in order to determine its distance from shore—the wrong shore!

There is a lighthouse at the end of Strömö, so Bech headed the *Tusk* for it. When we reached a protected place I took off my shoes and jumped ashore. I wakened the keeper and warned him that the steamer had not seen his light. He at once telephoned Thorshavn. The wireless station there called the steamer five miles away, probably saving it from destruction.

Meanwhile I had regained the *Tusk* by grabbing the gunwale on a flying leap into the water, and we blew into Thorshavn on the wings of the gale and the push of

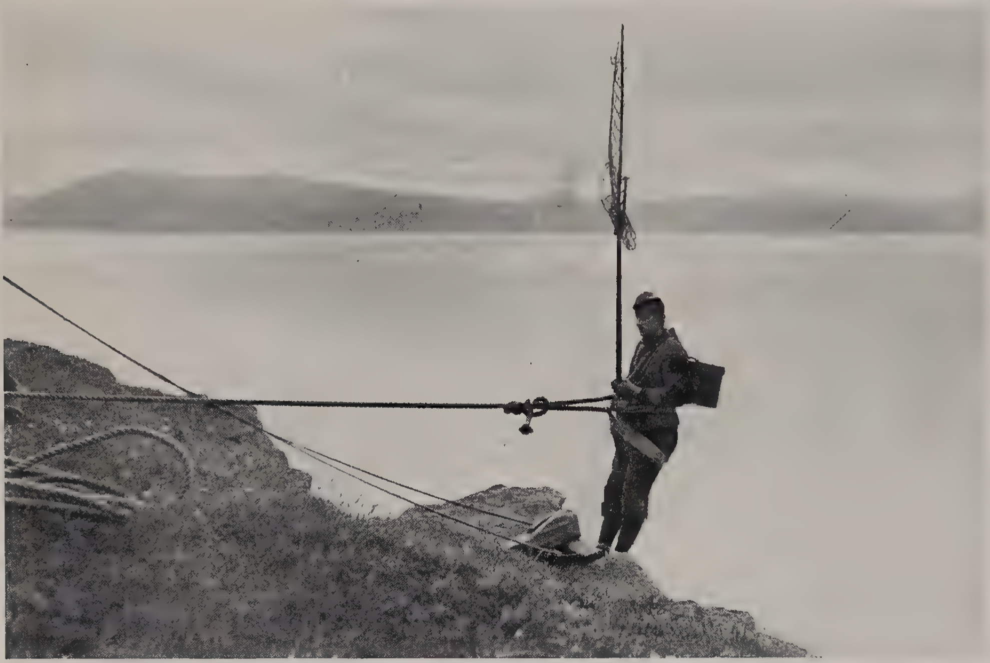
GANNETS BREED ON TOP OF PINNACLE ROCKS

The dangers attendant upon climbing rock needles rising out of the sea do not prevent the islanders from raiding the high-perched gannet rookeries.



LOMVIES AT HOME ON A CLIFF LEDGE

Such a scene and such a narrow pathway, with a rock wall on one side and an abyss on the other, confront the bird hunter after he has swung himself into a balcony. Eggs of the lomvies (guillemots) are, by unique adaptation of Nature, top-shaped, so that they will roll around in a circle, but will not roll off a gently inclined surface.



OVER THE TOP FOR BIRDS

The top is 600 feet above the cold, blue ocean, to which he calmly turns his back as he walks down the overhanging cliff, net in hand. "Just as he reaches the outermost point, he must give a push with his feet to start himself swinging, because the bird galleries have been undercut and can be reached only with a swinging motion."

the tide, 40 hours after leaving Myggenaes. Never did fresh water taste so sweet nor bed feel more comfortable.

Although our experience was not different from the risks the adventurous natives run frequently, I hope that I shall never have to make such a journey again.

ACRES OF FISH

While the farmer-fishermen of the north islands like Myggenaes and Viderö are self-supporting, living on the fish of the sea and the sheep on their barrens, almost independent of what the world has to sell or wishes to buy, different conditions obtain in the southern and more populous islands, where extensive fisheries have long been operated.

So I went to Syderö to observe the landing, cleaning, and curing of the famous Faeroe *klipfisk,* or dried cod, which finds a market in Spain, Italy, and elsewhere.

A decline in this major industry has been occasioned by many factors. The modern equipment used by steam trawlers elsewhere, newer and quicker methods of packing used in Newfoundland and Norway, and a reduced world demand necessitated the recent extensive program of aid by the Danish Government. Figures show a tragic loss of trade; but to me, a newcomer, Syderö appeared to have all the fish any island could possibly wish.

The rock walls of the inlet redoubled the sound of our motor as we chugged into the port of Trangisvaag. Because it was a bright day, the rocky shore was white with the codfish which are Syderö's chief stock in trade. We must land, but where, without stepping on a codfish spread out to dry? Acres of fish lay everywhere, soaking up the fitful Faeroe sunshine. Fish followed the shore line as if they had been cast up by the sea. They covered a slope like slates on a roof, thousands of oval slabs of white fish meat—a thirsty sight!

In order to see the industry from beginning to end, I went out on the banks in a fishing schooner. A line, two hooks, and some fish or bird intestines for bait are all the gear a native needs. When the boat has been anchored, over go the lines and in come the fish. For the novice, there is

SEA GULLS LIKE AN APARTMENT WITH A VIEW

a thrill in pulling in a 5- to 25-pound fish, but it is an old story to the islander.

Fish are cleaned at once and salted down. Often a ship will return to port with 250,000 pounds of hand-caught fish. Again it will go out and never return at all! These are brave men who go to sea for cod.* Each year numbers of island fishermen lose their lives at their trade. Each grim cliff is the tombstone of some schooner and her crew.

Once safely back in Trangisvaag, or the neighboring port of Vaag, the schooner unloads its fish, which are passed on to women out on the piers, who bend over huge vats of water, scrubbing the cod clean. Pictures of these arduous workers I obtained only with great difficulty, for in The Faeroes, as elsewhere, women do not want their pictures taken unless they are dressed in their best clothes (pp. 615, 629).

COD TOO COSTLY TO EAT

In this citadel of the cod I foolishly tried to get some to eat. My request was regarded as outlandish. It is all very well to sell cod, but it is much too costly to eat; so thinks a native. But at last I persuaded a storekeeper to cook me some, and I found it quite the finest I had ever tasted.

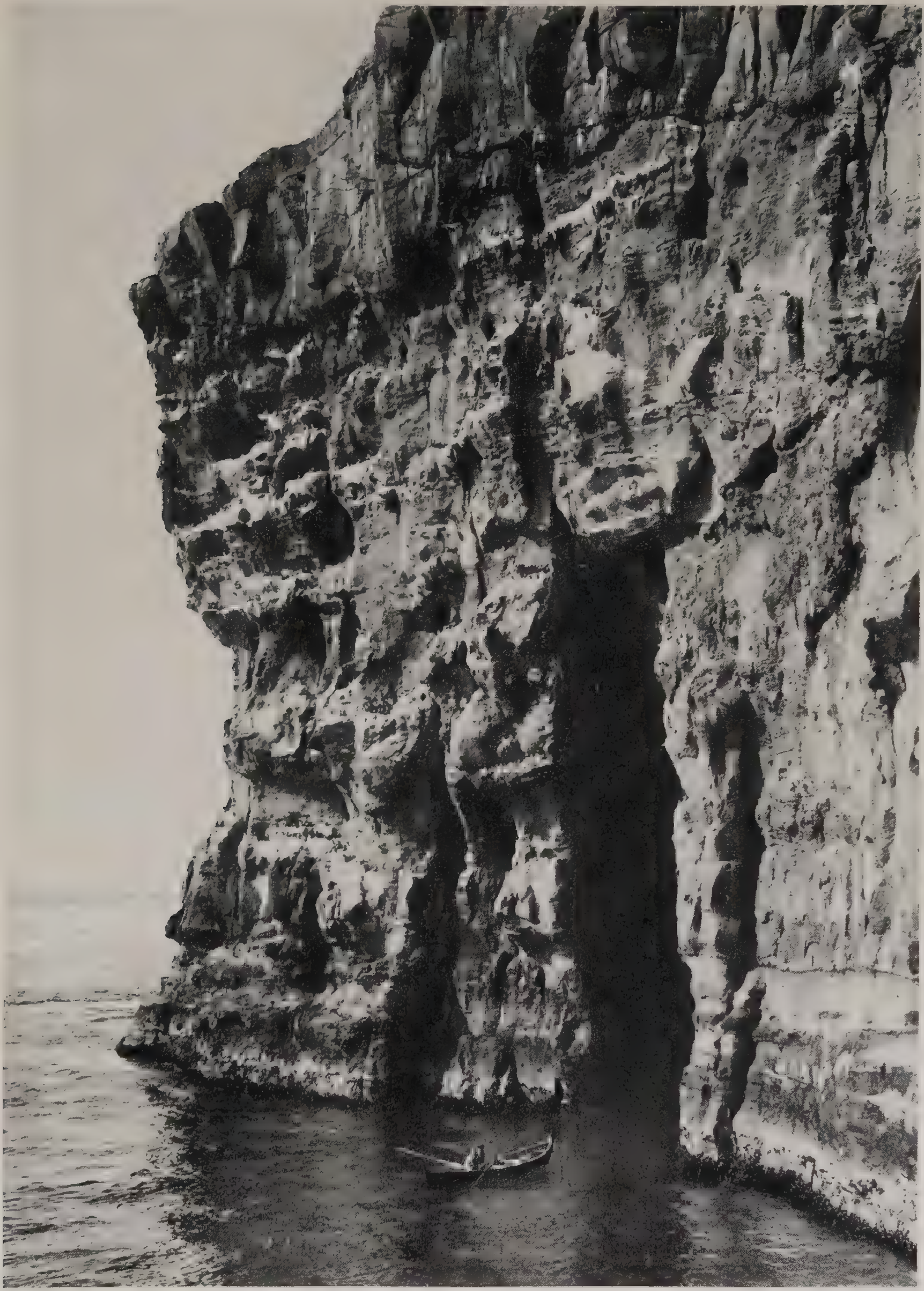
The excellence of their cod the islanders attribute to their method of curing, which they have followed for generations. In fact, it is disrespectful to one's ancestors to do any task in The Faeroes differently from the way it has been done in the past. Loss of their world markets, hunger, privation — none of these evils warrants a change from old ways.

With an average of 60 days of sunshine in a year, air-drying of cod, which the natives insist upon, becomes a toilsome, long-drawn-out task, requiring one to two months. Rocky shores are the drying ground, although occasionally tables are used (see pages 614, 629, 630).

Men, women, and children watch lovingly over their fish. One person stands guard constantly at each drying field to frighten away the birds, and each community designates one old man as weather expert to scan the skies. When a squall threatens, he beats a gong and everybody

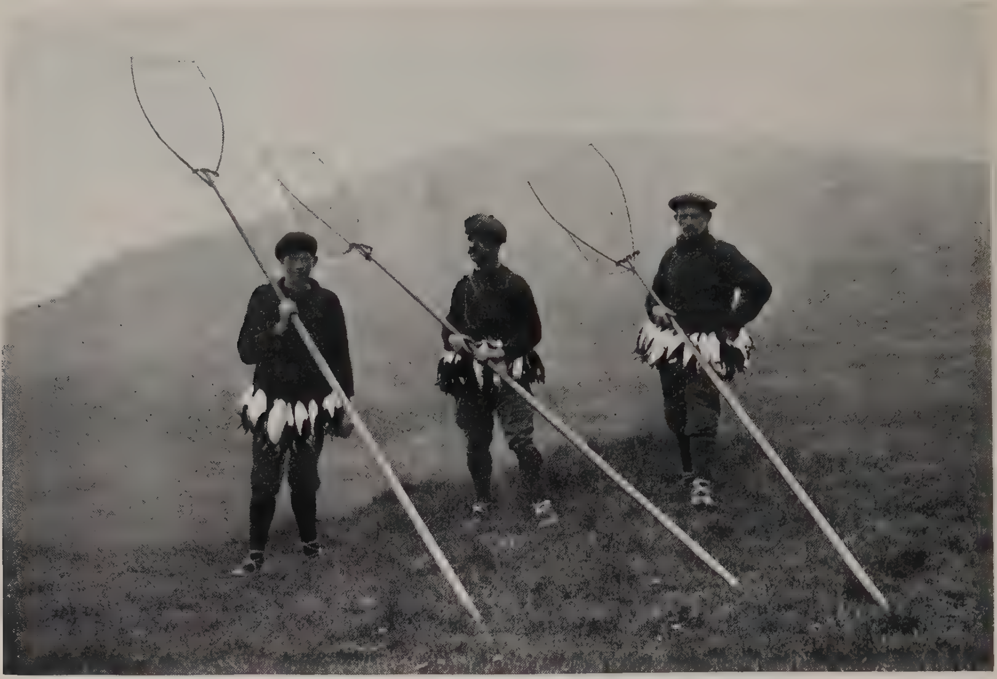
---

* See, also, "Life on the Grand Banks: An Account of the Sailor-Fishermen Who Harvest the Shoal Waters of North America's Eastern Coasts," by Frederick William Wallace, in the NATIONAL GEOGRAPHIC MAGAZINE for July, 1921.



WHERE THEY RISK NECKS TO WRING NECKS

When the hunters swing themselves onto the undercut rock balconies, they catch the birds with a pole net, wring their necks, and drop them into the sea to be picked up by a boatman. Men working on the cliffs must be careful not to drop birds or eggs or dislodge rocks directly above the boat. Objects falling from Store Dimon cliffs, which rise 600 feet above the sea, attain great speed. Eggs have been known to pierce the bottom of a rowboat.



SEA PARROTS, OR PUFFINS, FORM THEIR SCALP BELTS

The birds may be eaten fresh, salted for winter use, or more rarely nailed to the side of the house and preserved by drying. Feathers of the birds bring 25 cents per pound, two dozen birds yielding a pound of feathers.

THE SEA PARROT DEFENDS THE ENTRANCE TO ITS NEST

The bird makes an excavation three to four feet deep and forms its nest on the bottom. Here seven to eight birds live together, and in case the breeding pair dies, the other birds care for the young.

HIS LIFE HANGS BY A THREAD

The birdcatcher swings himself back and forth, leaping for a ledge he can hang to, snaring chattering birds with his net. By churning his legs in the air, he keeps his face toward the cliff. Stones dislodged by the rope biting into the rock lip above sing dangerously close. Falling stones have killed many birdcatchers.

who can use his legs rushes shoreward to pile the fish in stacks under canvas. No one is exempt, according to the custom of the country, from rescuing the codfish from a rainstorm, and only once, in order to make films of the people running, did I fail to join the codfish stackers; otherwise I should have been looked down upon.

Sometimes the fish are distributed and stacked seven times in a single day!

FAERÖESE—AN ANCIENT LANGUAGE

I found the islanders of the south quite different from those of the north. On Viderö and Österö live the true sons and daughters of the Viking settlers, who came about 800 A. D. They have blue eyes and flaxen hair. They are silent, grim, determined.

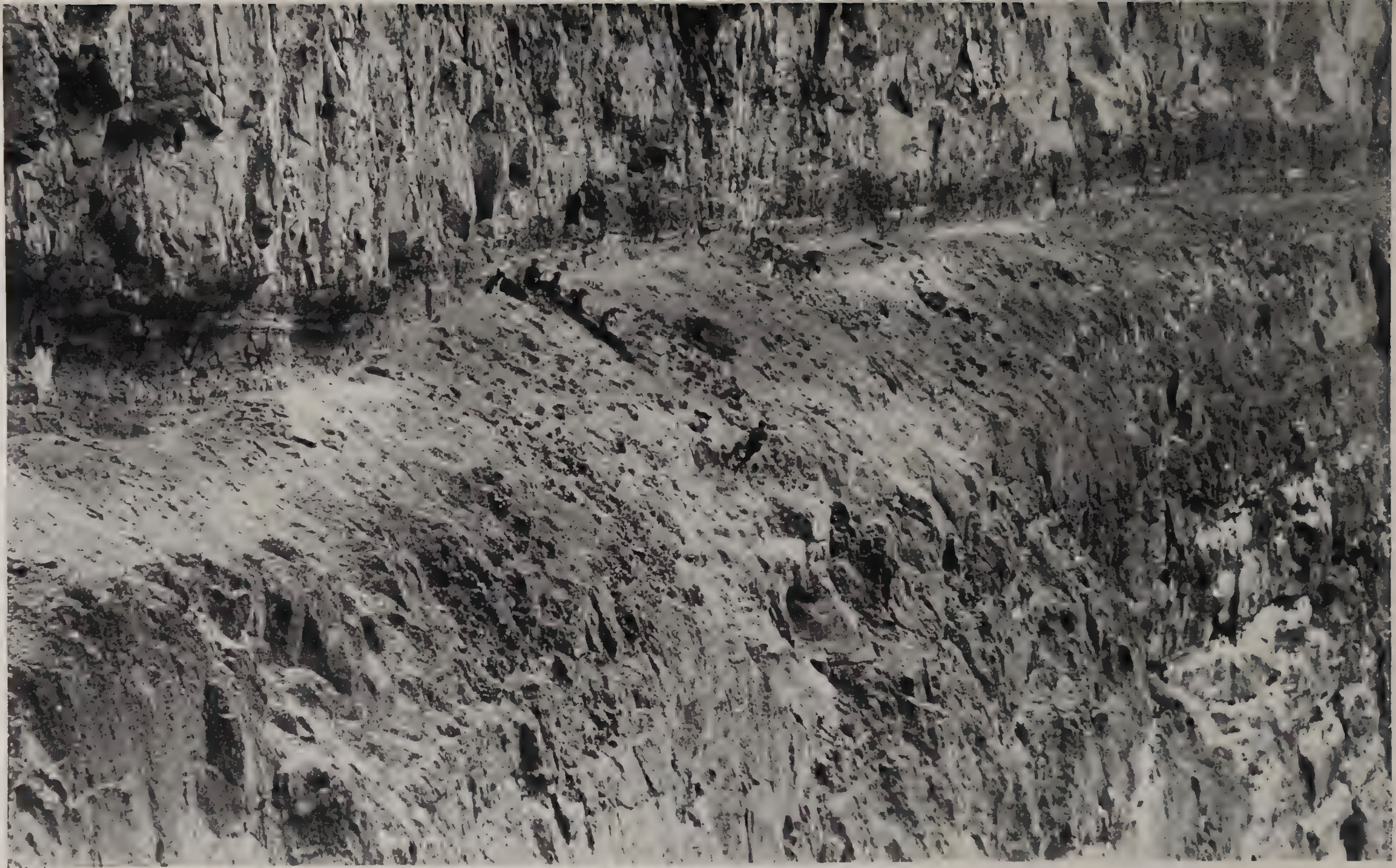
But in the south, probably due to an influx of foreign blood—historical records are foggy—they often have dark hair and eyes and are more nearly of the Latin temperament, being more excitable, more impetuous, and more hospitable to strangers than their northern brothers and sisters.

Despite these marked differences, a single language serves all the inhabitants, and the native costume is used throughout the archipelago without important variation. Faeröese is such an old Scandinavian

SEA-CONSUMED ISLANDS WHICH, WITHIN THE MEMORY OF NATIVES OF THE FAEROES SUPPORTED HUNDREDS OF SHEEP, NOW OFFER ONLY ROOSTING ROOM FOR BIRDS

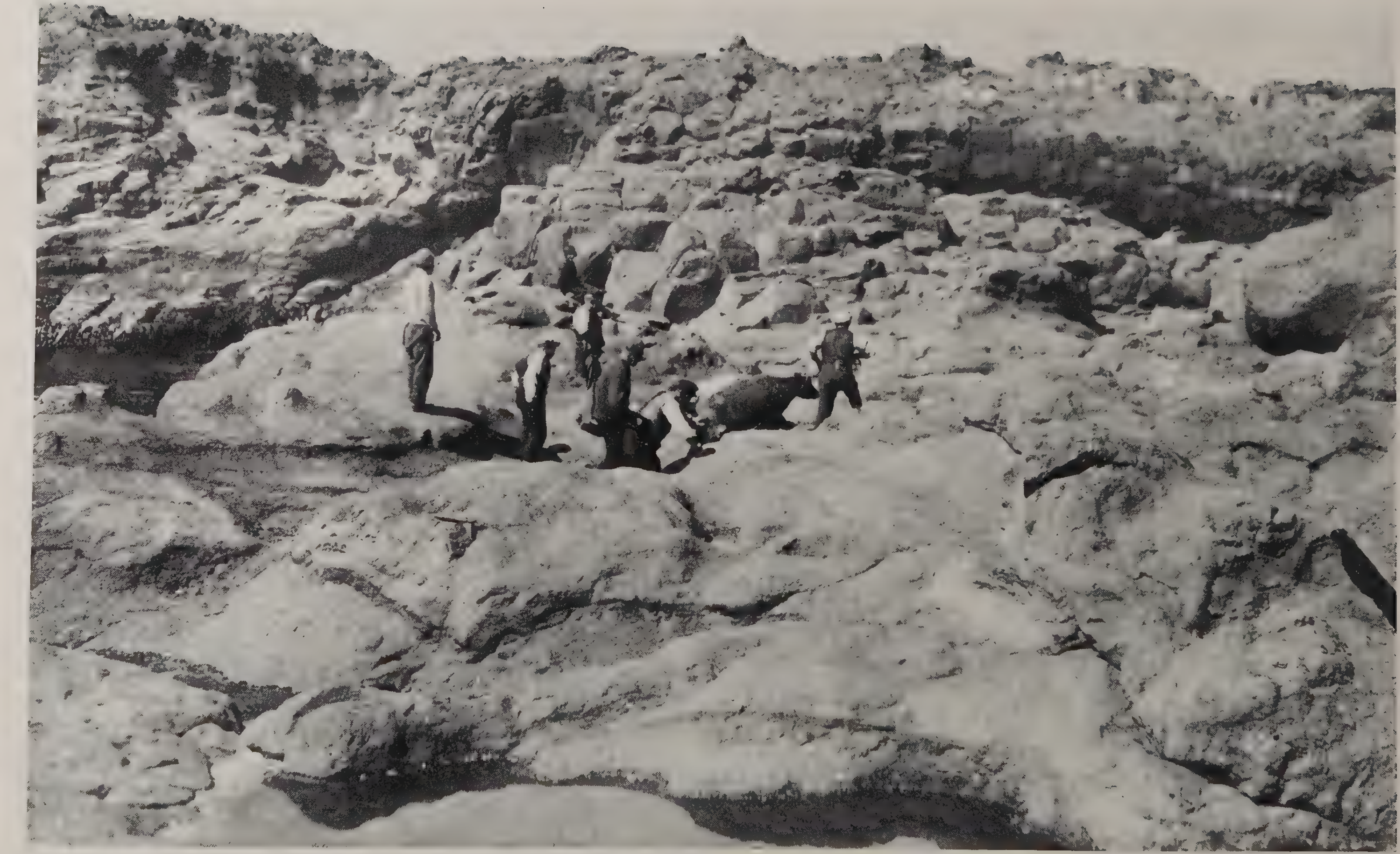
SUMBÖ VILLAGE LOOKS OUT ON A RARE CALM SEA

Southernmost of Faeroe villages, Sumbö, on Syderö, has chiefly brunette residents of short stature. Infusion of Celtic blood, possibly through original inhabitants or through Norse invasions of the British Isles, is believed to account for the variation from the blue-eyed, blond Faeroe Viking type.

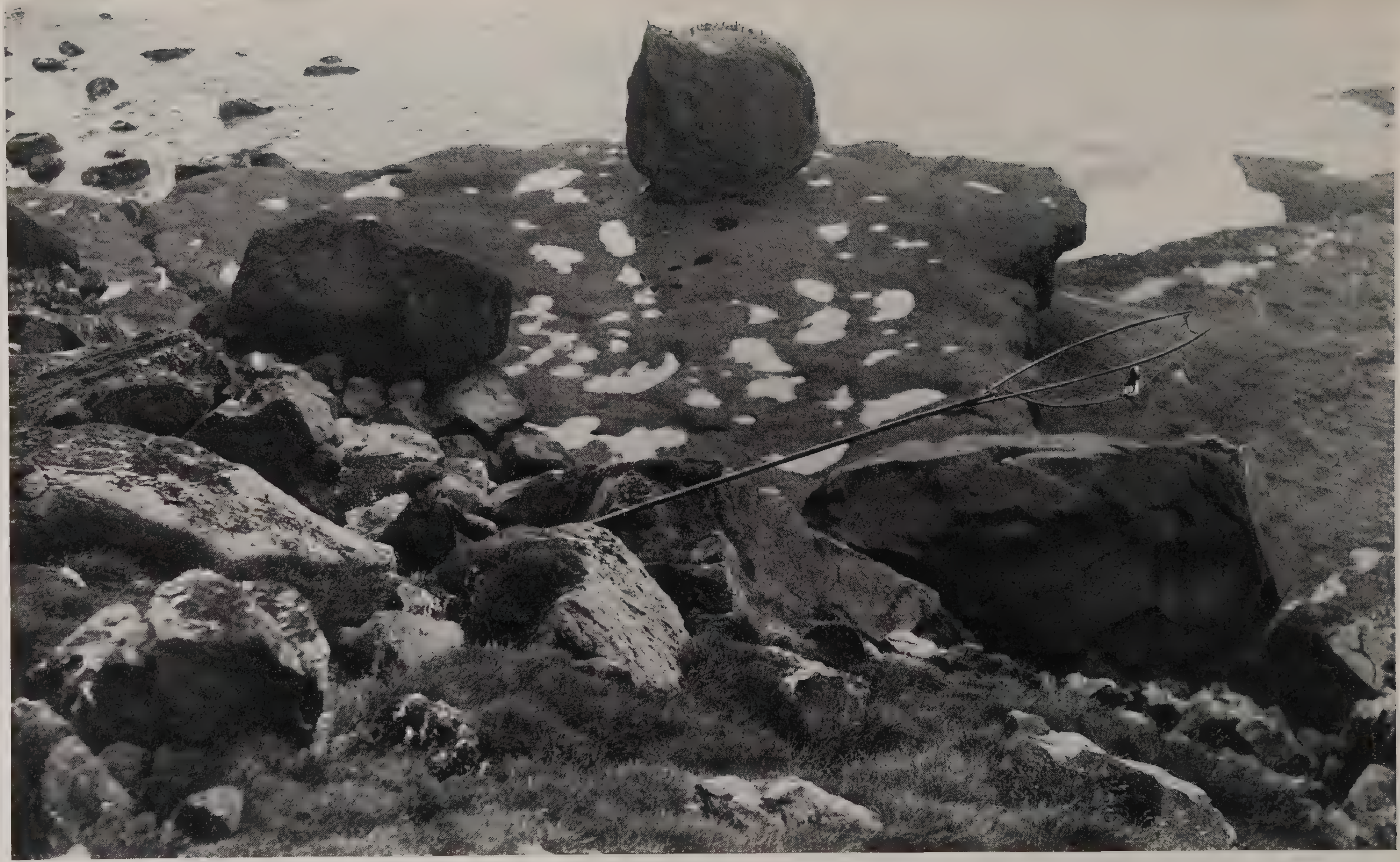


FOR THE WINTER FOOD SUPPLY, NOT PUBLICITY, THE FAEROE HUMAN FLIES RISK THEIR LIVES

Four islanders, with their heels dug in the loose soil of a narrow shelving ledge, let a companion in a rope seat over the edge of a precipice that hangs over the sea. The objective of the daring hunter is the whitened ledges below, where sea birds, overconfident of their security, make no attempt to fly as the hunter approaches. When men leave home to go birdcatching on the cliffs of Store Dimon, they are often mourned as dead by their families, so hazardous is the occupation.

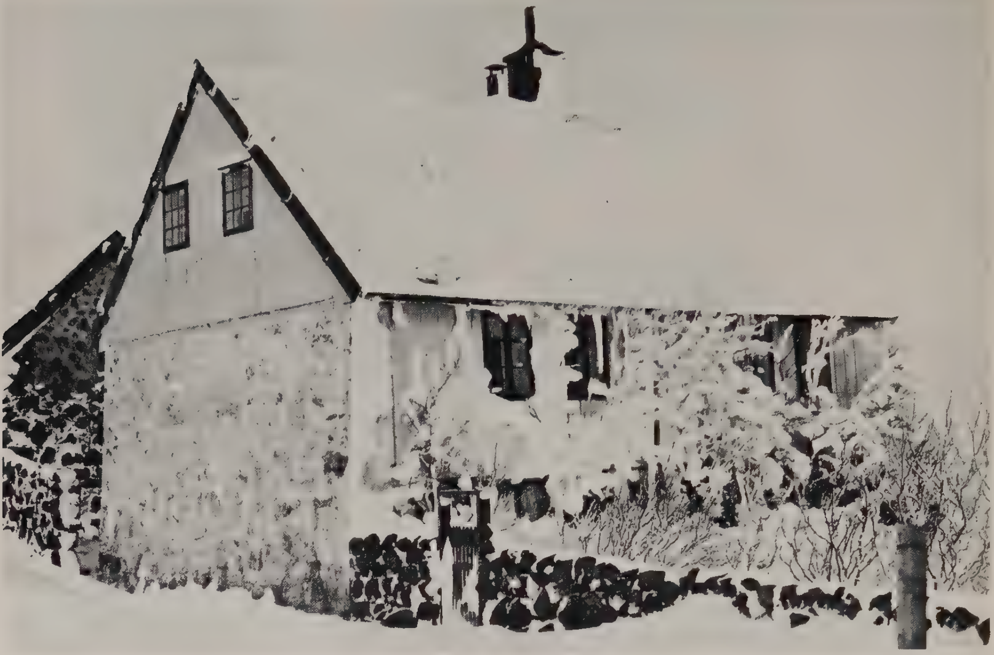


A FAEROE COMMITTEE OFFERS FREE ADVICE ON THE BEST WAY TO GET A COW INTO A BOAT



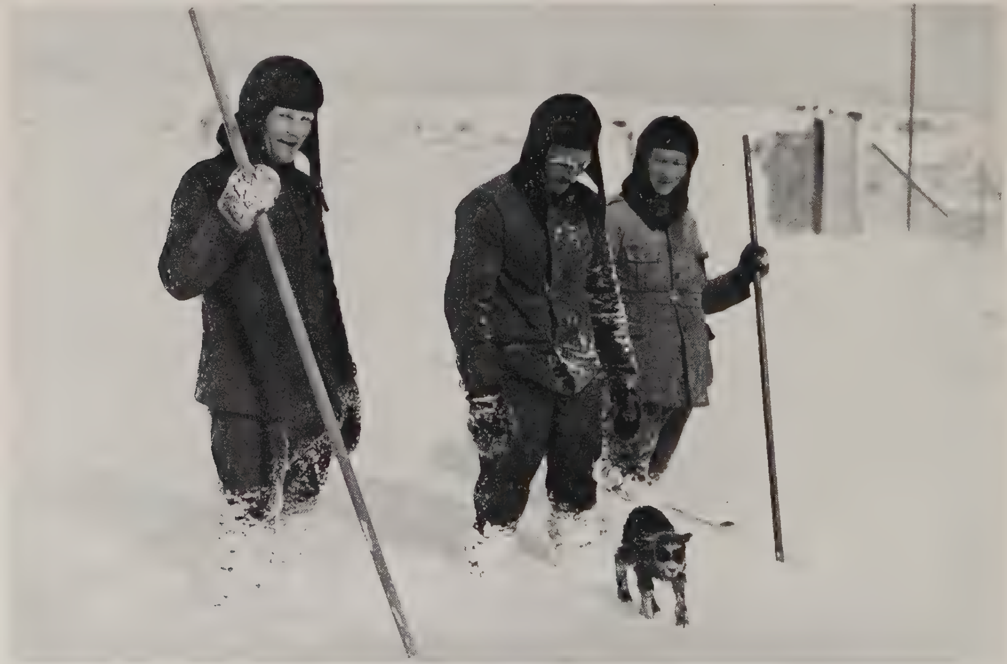
SCOOPING SEA PARROTS OUT OF THE AIR

A hunter, armed with a net on the end of a long pole, hides among the rocks. When the sea parrot, or puffin, flocks, circling the island, fly by he deftly snares the bird in mid-air. If the bird carries fish in its beak, the catcher lets it go, knowing that it is feeding its young. A skillful hunter can catch a thousand sea parrots in a day.



IN THE MERRY MONTH OF MAY

Spring sometimes brings terrific snowstorms to The Faeroes. Winds blow so violently the year around that trees are a rarity, growing only in the most protected places.



SAVING AN ORPHAN OF THE STORM

Bad weather in The Faeroes usually comes in the form of rain, so that an unusually severe snowstorm spreads havoc among the flocks of sheep. The author was one of a party that went out after a heavy snowfall to rescue sheep. Deep in the drifts this young lamb was found.

tongue that few Danes, Norwegians, or Swedes can understand it without training; yet from the sagas preserved in it the Danish people have recovered songs and tales lost to them many generations ago.

On our way to Syderö we passed Lille Dimon and Store Dimon, one of which was the scene of a later expedition. They rise like pyramids from the sea, greater and grander and rougher than Cheops's own tomb.

No one, so far as I can learn, has ever landed on Lille Dimon, because its cliffs rise sharply on all sides; but on Store Dimon lives one family which did have a calf and still has a cow and some sheep to graze on a small cliff-girt plateau. At a certain period of the year Store Dimon's population is increased by four or five young men from neighboring islands, who go birding and egging in the vast rookeries on the bluffs facing south and west.

Four times we went to Store Dimon and failed to effect a landing. The fifth time the sea was calm enough and the tide was right. Bech anchored the *Tusk* and followed me to shore. The way to the lone farmhouse led 600 feet up the face of the cliff, where holes had been cut in the rock to provide a foothold (page 626).

The sole householder on the island, a taciturn man, guided us up. At perilous places he would say: "So-and-so fell here some years ago and was killed." Or, "Be careful here; the priest slipped and was dashed to death at this point." No one ever got hurt, no one ever got off with a broken leg; one either got killed or didn't get killed.

CABLES BRACE WIND WALLS

Despite his dispiriting death list, which reached seven or eight, we gained the top of the cliff safely and walked to the farmhouse over against a hill. It was a large building surrounded by stone walls, which were higher and stronger on the east and west sides. These main wind walls, constructed of cemented stone, were six feet thick and were braced internally by heavy wire cables, which stretched from the top of each wall, past the front of the house, to an anchorage at the base of the opposite wall (see page 631).

Cable-bracing on so firm a barricade surprised me; so I asked the owner if it were necessary. Even with the support of the cables, he told me, the wind pouring from the hill twice broke down these walls and nearly wrecked the dwelling.

The sad story of the family living in this lonely farmhouse well illustrates the hardships and perils that the inhabitants endure. And yet they love their islands and will not leave them for an easier life in Denmark. Furthermore, each islander thinks his own island and its precipices more beautiful and marvelous than any other in The Faeroes.

The household which we joined consisted of a boy four years old, his widowed mother, a male relative (our guide) who had taken charge of the farm, and five young birdcatchers, who had come over from Strömö for the season. The little child's father had been killed by a rock that fell on him while he was catching birds on the face of the cliff; his grandfather had been killed by falling into the sea while engaged in the same occupation, and his great-grandfather had met sudden death from an avalanche of rocks.

Birdcatching on Store Dimon's cliffs is considered more hazardous than going to sea, and the young men who pursue the quest are mourned by their families as lost before they leave home.

The widow of Store Dimon had not been off the island for three years because she would not risk the dangers and difficulties of the trip down the cliff.

SEA BIRDS NEST IN CLIFF APARTMENTS

On all the islands birds nest on the south and west cliffs, where they can get the maximum warmth from sunshine. Store Dimon has especially large colonies, which, each year about April, move into compartments on the precipice, as New Yorkers move into skyscraper apartments. On the very top, where there is some soil, the sea parrots, or puffins, settle down, while the *lomvies,* or guillemots, also of the auk family, congregate in thousands on the rock balconies overhanging the sea.

First we photographed the black-and-white sea parrots. Often we found them, yellow hook-billed, scrappy little defenders of their properties, in the grass at the entrances to their nests. They burrow sometimes a yard deep in the soil to build warm, protected nests for their young. There they hatch their babies, one at a time, but rapidly, and thus there may be eight or ten in the nest at once.

TWENTIETH-CENTURY VIKING BOATS LINE UP FOR A RACE

Narrow-waisted, pointed and upcurved in stem and stern, Faeroe rowing boats to-day show their direct descent from the Viking raiders in which Norsemen a thousand years ago swept down on England and northwest France and even sailed to America. To such boats The Faeroe islanders dashed on Sunday, six weeks ago, abandoning church services, when screaming sirens announced the approach of a school of *grind* whales. Even the minister joined in the wholesale killing of a school of 100, one of the largest kills in many years (see text, page 648).

The male is the chief, although not the sole, forager for the minnows on which the family feeds. If he should be caught or killed, another male bird will take his place at the nest; if the mother bird is killed, another hen will come; if both disappear, a foster parent, male or female, will take charge of the little ones and feed them until they can care for themselves.

How different from the lomvies and gulls in the apartments below! If a fuzzy young gull's parents are killed, the other birds on the rock balcony not only fail to feed him, but will push him over the edge to death in the waters hundreds of feet below.

Sea parrots are snared in hoop nets on long poles by men who station themselves in the rocks on the sides of the cliffs. Such a position brings them close to the birds, flying around the island in dense flocks, as they scout for schools of fish. One swoop with the net and the birdcatcher has a bird; never more than one to a swoop. But an expert will take a thousand birds in a day. If a sea parrot has a fish in his beak, the catcher will always release the bird, because he knows that it flies to feed its young.

BIRDCATCHING NOT AN IDLE SPORT

Catching lomvies along the rock galleries requires a different technique and is much more dangerous. The catcher takes his pole net, fashions a swinging seat at the end of a stout, thick rope, and approaches the cliff edge. Then he walks backward over a brink 600 feet above the sea (see illustration, page 639). Four or five strong men let him down gently.

Just as he reaches the outermost point, he must give a push with his feet to start himself swinging, because the bird galleries have been undercut along the precipice face and can be reached only with a swinging motion. Once when I went down I failed to push off properly, so the men on the rope had to pull me up again until I could reach the rock with my feet. Once swinging, one can increase or decrease the arc at will.

Another difficulty is found in the twist-

FAEROE PONIES ROAM THORSHAVN'S STREETS, MUNCHING GRASS TUFTS

ing of the rope, which brings one's back instead of one's feet against the rocks, but by kicking and churning his legs in the air a trained birdcatcher can keep his face to the cliff.

Once he has reached the proper level, the birdcatcher makes a long swing, lands on the rock balcony with a flying leap, and hangs on like grim death. He finds himself in a colony of parent birds, fledglings, and eggs, which lie exposed on the bare rock. Moving his net in front of him and half concealed along the face of the ledge, he works toward the chattering throng, always carrying his rope. Suddenly he elevates his pole and the frightened birds fly into his net.

The catcher, like a duck hunter, hangs his birds at his belt until he can throw a number of them to an assistant waiting in a boat below.

But he must be careful not to hit the assistant or the boat. Because of the great height, eggs falling off the cliffs have been known to go through the bottoms of rowboats standing by at the base (p. 635).

Birding is no idle sport for the islanders, but a serious business, worth the hazards, for the flesh of the catches provides food for many mouths for many months and the eggs also are eaten.

In order that I might get pictures, we prepared two ropes. The birdcatcher went over in one, while I was let down at the end of the other. He went at his work among the rookeries as I turned the crank of a small camera and concentrated on my task in the vain endeavor to forget the white surf rushing wildly against the rocks hundreds of feet below.

SHATTERING THE NERVES OF A CALF

As a matter of fact, the task of filming the bird life of The Faeroes brought me into no actual danger except once when I took a position on an isolated pinnacle of rock in order to "shoot," photographically speaking, a birdcatcher against the sky as he came over the lip of the cliff. Weathering had rotted the rock and, in going over, the native boy dislodged a loose mass directly over me. By good fortune, only tiny pieces hit me and the camera.

Shortly before we left Store Dimon an incident occurred which, with the coöperation of the farmer, I photographed at the risk of shattering the nerves of his calf. He had sold the beast to a man on one of the neighboring islands, and the new owner had come in a boat to get her.

The master of Store Dimon fastened a large belt around the calf and, with the assistance of everyone in sight, eased her over the cliff into mid-air. I photographed the calf's departure, but I wanted also to get her arrival down below; so I persuaded the farmer to leave her suspended in air for an hour and a half, while I picked my way down the steep path with my equipment. Then I photographed the calf landing at the base of the precipice.

Every kind of goods that goes on or comes off Store Dimon rides on the 600-foot improvised freight elevator used to remove the calf (see page 648).

A TELEPHONE CALL FOR WHALES

Leaving a telephone call for whales was, I suppose, the most unusual experience of my two summers on The Faeroes. After many false alarms, we got a call that sent us racing around to the north shore of Vaagö, where a herd of more than a thousand *grind* whales (also known as caaing or pilot whales, or blackfish, a species of dolphin) had been sighted. We saw the whales, but I failed to see a native whale hunt brought to the gory success that makes it such an astounding combat between men and beasts.

Whaling plays such an important part in the island life that I was eager to see it all—modern commercial whale hunting in a steam whaler carrying a harpoon gun, and also the primitive Faeroe hunt. The former was more easily arranged.

For some years the Norwegians have maintained on Strömö the sole Faeroe commercial whaling station, although the Danish program of aid calls for the establishment of another, to be operated by Danes and islanders. So I went whale hunting in the Norwegian ship. Just as the captain was about to give up and go back, the lookout sighted a big bowhead (Greenland right) whale.

My camera and I were at once lashed to the side of the bridge, where the high position gave me a view of the harpoon gun, mounted in the bow, and whatever the gun was pointed at. There I swung, cranking as the gunner shot and missed, shot again and missed, shot again and hit the whale in the tail. The wounded creature dashed off, pulling the boat at considerable speed until the rope snapped.

Soon we sighted the whale blowing again, and this time the harpooner made a clean hit. Our monster broke three lines that day. Although we had reason to believe the last harpoon killed the whale, a storm blowing up compelled the sailors to abandon their quarry and return to port.

Whales of various species are taken off The Faeroes. They are used mostly as food by the islanders, because the Danish Government requires the Norwegian whaling station to sell to the natives at a very low charge all the whale meat they need. Any surplus the Norwegians reduce for the oil. A captured whale's usual ultimate destination, therefore, is half-and-half, so to speak—part for the dinner table and part for the laundry tub as soap.

Catching the grind whale is another story. It is no leviathan, like the bowhead whale, and seldom attains a greater length than 25 feet. Still, it is fair game for the islanders, who are forever watching the sea for a fleet of fins cutting the water, for these mammals travel in packs.

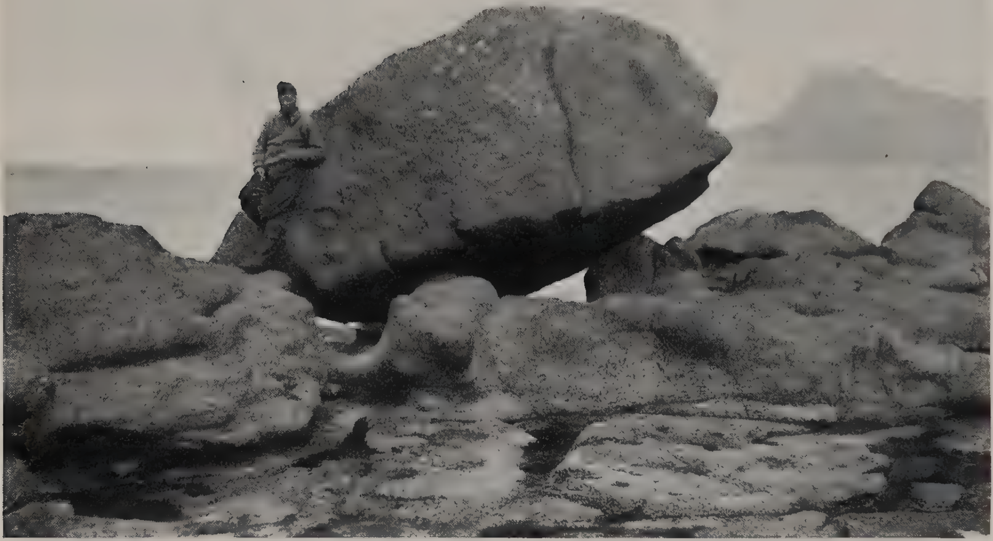
Appearance of a school off The Faeroes sends the islanders into a frenzy of excitement. A rush of volunteer village firemen to fight a local blaze compares mildly with the madness that breaks loose when whales swim by. As soon as a pack is sighted, all the men of the nearest community dash to their boats. They put out to sea, surround the whales, and herd them close to shore by tossing rocks in front of those that try to escape.

Meantime, if a telephone of the inter-island system is near, a general alarm goes out over the lines to every community whose oarsmen could be expected to reach the scene of action. If no telephone is available, the inhabitants fall back on the ancient device of a smoke signal.

We had begged to be called, night or day, rain or shine, and in answer to the most hopeful whale-hunt telephone call Bech and I sped north in the *Tusk*. As we turned a cape on Vaagö, a dozen Viking boats (see page 644) appeared, tossing on the waves, in a great semicircle. One carried a white shirt on an improvised mast, a sign that its men had discovered the pack and were leading the hunt.

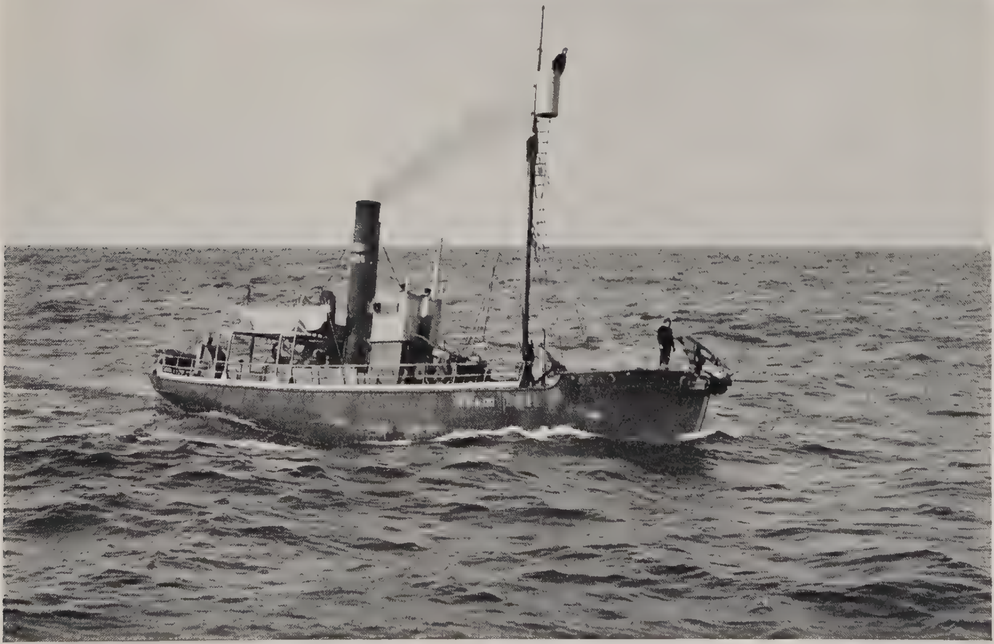
HARPOON, LANCE, AND KNIFE DESTROY THE CORNERED WHALES

Within the arc of boats hundreds of glistening-wet, sharp-pointed fins flashed and gleamed and slithered along the sea.



A BOWLDER TOSSED ON SHORE BY A RAGING SEA

Forty tons is the estimated weight of the rock thrown up by a tremendous wave to a ledge 160 feet above sea level.



THE "HEKLA" GOES OUT FOR WHALES

With her harpoon gun poised for the kill, the steam whaler cruises around The Faeroes in search of finback and blue whales. Law requires the whale fishery to sell to natives at a low price all the whale meat they demand for food; the surplus may be reduced to oil for export.

A CALF RIDES ON THE STORE DIMON ELEVATOR

All animals, produce, and supplies going to or from the island dangle on this open-air elevator, which compares well with the longest vertical transportation possible in New York's tallest skyscrapers. At the risk of permanent damage to the calf's nervous system, the bawling beast was suspended in mid-air while the author picked his way down the cliff path to make motion pictures of the animal's descent and safe arrival (see text, page 645).

The whales seemed to be playing like a yardful of school children at recess time. They were not aware of any danger and, indeed, the islanders were little more than following the pack, careful not to alarm the sea creatures until reënforcement boats could arrive. Bech and I stayed well away, fearful lest the noise of the engine exhaust frighten the pack. Tense excitement gripped us, but our hopes were dashed when a storm came swiftly down and all the hunters abandoned the hunt to run for safe harbors.

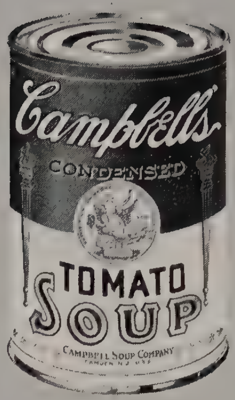
If the whale hunt had gone on to a successful kill, the first ring of boats would have herded the pack into the mouth of an inlet. When a second line of boats had been rowed into position back of the forward circle, the attacking islanders would have moved in closer, forcing the whales up the passage. Then, at a signal, harpoon, lance, and knife would have begun their gory work. Kill, kill, kill! The men strike and slash, yell and row wildly, in their haste to destroy the cornered pack.

Some of the mammals in their terror batter their heads against the rock cliffs. Some rush upon the beach, there to receive the *coup de grace* from men wading in blood and water up to their shoulders. Whales that make a dash for sea are set upon by the second line of attack. The hunt is all the more stimulating because it is not apt to occur frequently these days.

The Danish Government pays a special commissioner to supervise the distribution of the meat after a hunt has been completed. When the rights of the men who actually killed the whales are satisfied, the village that sighted the pack receives a special quota, while the remaining meat is divided equally among the other communities that sent boats to the hunt.

Two long summers I waited in vain for a grind whale hunt. From what I have been told I know that, as it is conducted in The Faeroes, it must be one of the most heroically primordial conflicts now to be seen on earth—a scene out of a saga, an incident in some hoary epic of heroes of the sword suddenly reënacted in all its stirring, fearful ruthlessness. So I am going back some summer and wait for that telephone call, "Whales sighted!"

A soup that lingers vividly in your memory!



The appetite has its adventures, too—its thrills and little excitements that it treasures and longs to enjoy again. Campbell's Tomato Soup stands out like Fujiyama—a very jewel of the senses—an experience you do not forget. Its flavor is unique. For it first gave popularity to Tomato Soup and it has made of it the best-liked of all soups. Campbell's Tomato Soup has more devotees than any other soup in the world! It's but one of the 21 Campbell's Soups for your choice.

Your choice

Asparagus
Bean
Beef
Bouillon
Celery
Chicken
Chicken-Gumbo (Okra)
Clam Chowder
Consommé
Julienne
Mock Turtle
Mulligatawny
Mutton
Ox Tail
Pea
Pepper Pot
Printanier
Tomato
Vegetable
Vegetable-Beef
Vermicelli-Tomato

LOOK FOR THE
RED-AND-WHITE LABEL

MEAL-PLANNING IS EASIER WITH DAILY CHOICES FROM CAMPBELL'S 21 SOUPS

The continent that became a neighborhood

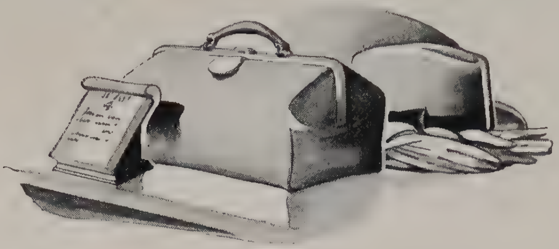
An Advertisement of the American Telephone and Telegraph Company

THROUGH slim wires etched against the sky . . . through cables laid in the earth under cities and fields . . . millions of Americans, miles or days' journeys apart, speak to each other as readily as though they stood face to face.

Over her telephone, a housewife in a Wisconsin town inquires about a dress pattern from a friend who lives nearby. Over his telephone, a business man in Philadelphia talks to another in Denver. Over her telephone, a mother in Kansas asks her son at college fifty miles away if he will come home for the week-end. Over his telephone, a cabinet member in Washington gives instructions to an assistant in Seattle. Regardless of distance and the complexity of modern living, they talk directly and immediately with any one, anywhere, at any time they choose.

The function of the Bell Telephone System is the vital one of making it possible to maintain social and business contacts in cities that contain many times more people than this nation once boasted . . . in a neighborhood which the Census reports to hold 127 million people. Year after year from its beginning, the Bell System has increased its facilities, its personnel and its usefulness. Looking ahead and planning for the future, it has forwarded the growth of this nation by meeting its communication needs fully and economically. Today it overcomes the hindrances of distance and time . . . and unifies a civilization geared to the habit of instantaneous communication.

Because it serves all who call on it, by enriching their lives and helping to make their enterprises more successful, the telephone plays an increasingly useful part in the every-day activities of the American people.



"Too many operations!"

Life for a certain city doctor kept growing more and more strenuous. He was on the staff of a large hospital. He had a rapidly increasing practice.

He had to make time for his surgical operations. He had little time to study investment trends. But he could not afford to neglect his personal investments. How could he attend to them quickly, safely and with full realization of opportunities?

WHAT he will find in National City service

CONVENIENT OFFICES. National City offices throughout the world are at his command.

INVESTMENT EXPERIENCE. He will be dealing with an organization with a background of over a century of financial experience.

MARKET CONTACTS. National City offices are in close touch with all investment markets.

INVESTMENT RANGE. National City's broad lists are made up from the world's finest investment offerings.

Whatever *your* investment problem may be, you will find practical and prompt assistance at your nearest National City office.

The National City Company

NATIONAL CITY BANK BUILDING, NEW YORK

INVESTMENT SECURITIES

HELP HIM *peep into to-morrow!*

Give a scientific weather guide, so he can plan his pleasures and business affairs *

YOU know how eagerly men plan every hour for the day ahead. Do those clouds mean snow and rain or will his tomorrow be clear? Shall he cancel his appointments or can he safely arrange important meetings?

Let a Stormoguide inform him accurately 12 to 24 hours in advance. As necessary as a clock—for clocks tell of today, while Stormoguide reveals tomorrow.

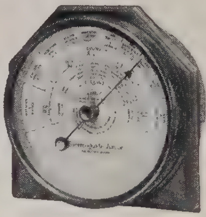
Within a few days he will be consulting it regularly—wondering why he never had one before—grateful to you for remembering him in such a helpful, original way. Made by America's leading manufacturer of precision weather devices.

Nothing to wear out. Requires no care. Here's a unique, welcome gift, truly unusual, not at all likely to be duplicated.

At department, sporting and optical stores. If they cannot supply you, simply use the coupon and get prompt delivery, postpaid.

Taylor Instrument Companies

ROCHESTER, N.Y., U. S. A.
CANADIAN PLANT, TYCOS BUILDING, TORONTO
MANUFACTURING DISTRIBUTORS IN GREAT BRITAIN
SHORT & MASON, LTD., LONDON



Taylor Stormoguide Junior, No. 2258

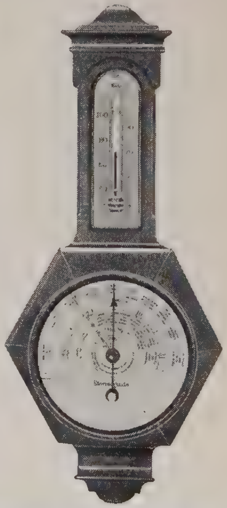
(At left) A sturdy, reliable weather forecaster. Thousands in use all over America. Walnut finished, bakelite case, aneroid movement. 4½ inch white dial. Adjustable for altitude, from sea level to 2,500 feet. Accurate, dependable. $10.

Taylor Stormoguide Pendant Pattern No. 2260

(At right) Classical design in dark walnut-finished bakelite, highly polished. Height, 13¾ inches; width, 6¼ inches. Gold-toned thermometer scale and Stormoguide dial, easily read. Dial 4½ inches in diameter. Stormoguide adjustable for altitude to assure correctness of forecasts. Famous Taylor precision is built into both instruments. A beautiful, unusual and highly appreciated gift, made to last a lifetime. $18.

Taylor Stormoguide Standing Pattern No. 2259

Same as No. 2258, above, with handsome easel stand on broad base. Gold-toned dial. An impressive gift. $15.



● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●

Taylor Instrument Companies,
91 Ames St., Rochester, N. Y.

Enclosed is $___________ Please send me 1 Taylor Stormoguide, Number_______________. I understand you guarantee safe delivery.

Name ____________________________

Address ____________________________

City __________________ *State* ____________

Taylor
Stormoguide
THE SIMPLIFIED BAROMETER

Alluring etched glass... by Heisey... *the most expressive gift*

Magnificent is the gift of this smart, original etched glassware by Heisey, a new design of delicate tracery and complete beauty that always charms. How delightful on holiday tables and what a treasure to own! . . . Choose the golden, gleaming *Sahara* color in this pattern, or the fascinating combination of crystal and *Moon Gleam green*. Or select an *all-crystal* set. Leading department stores, gift shops and glassware stores are showing them now in complete table services, with other Heisey creations. . . . "*Gifts of Glassware*" contains a wealth of suggestions to help you choose a gift to delight another—or one that you, yourself, will cherish. Write for your copy.

Glass Perfected Through the Secrets of 4000 Years

They say that when *Emperor Frederick IV of Germany* paid a visit to Venice in the fifteenth century, the doge and senators of that city presented him with a beautiful glass vase. They deemed glass to be the gift most worthy of honoring royalty. Now Heisey glass, created upon the secrets of all the centuries, is chosen by those who wish their gifts to be fully in keeping with the finest sentiments, honoring both the donor and the recipient.

A. H. HEISEY & CO., NEWARK, OHIO

Look for the Ⓗ *on every piece*
embossed on the glass
or on adhesive label

Heisey's
GLASSWARE Ⓗ *for your table*

Seasoned *in* Saving

Fording a creek on the Mohawk Trail in 1800—in that year mutual insurance was already half a century old.

A BUSINESS that has lived and flourished over 178 years must have much to recommend it.

But the appeal of the mutual plan of insurance to the modern business man goes far beyond mere age.

The very essence of mutual insurance is economy in operation, prevention of loss and a return to the policyholder of the unused part of his premium.

Mutual casualty companies charge no higher premium rates than other insurance carriers for workmen's compensation, automobile or the other forms of casualty insurance.

Yet the companies listed on this page are able to return millions of dollars in dividends to their policyholders every year; to the individual policyholder a substantial part of his premium.

For any casualty risk mutual insurance offers sound protection—a definite saving.

An interesting booklet is available on request. Address Mutual Casualty Insurance, Room 2200, 180 North Michigan Avenue, Chicago, Illinois.

MUTUAL PROTECTION IS AVAILABLE FOR THESE CASUALTY RISKS:

Workmen's Compensation
Accident
Automobile (all forms)
Burglary and Theft
Fidelity
Property Damage
Plate Glass
Liability (all forms)

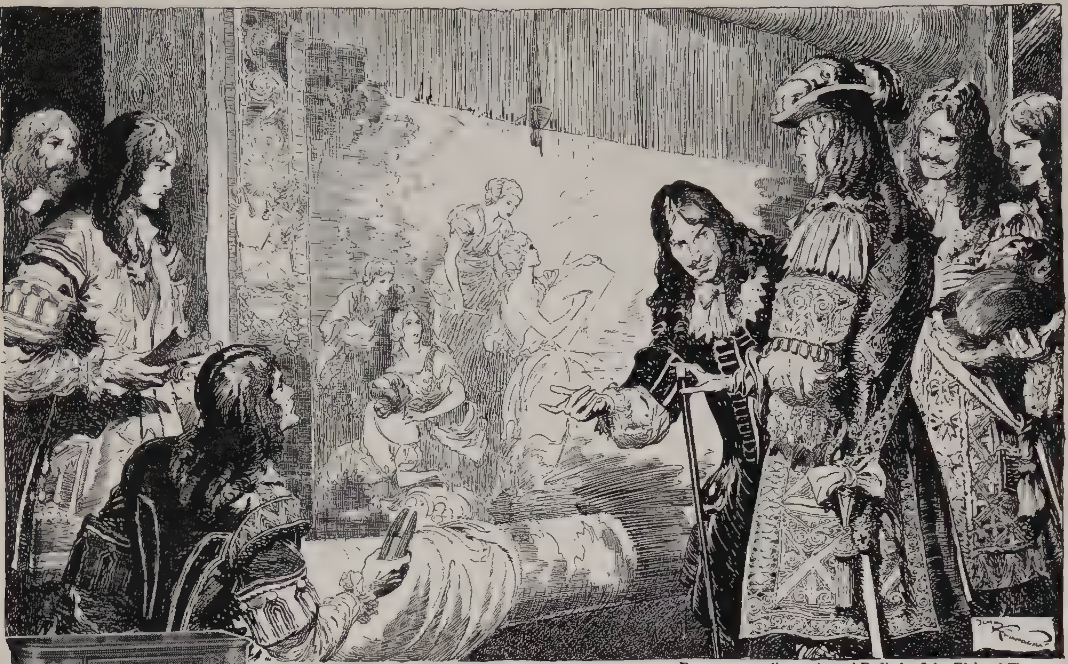
MUTUAL CASUALTY INSURANCE

These Old Line Legal Reserve Companies Are Members of

NATIONAL ASSOCIATION OF MUTUAL CASUALTY COMPANIES *and* AMERICAN MUTUAL ALLIANCE

Allied Mutuals Liability Insurance Co., *New York City;* American Mutual Liability Insurance Co., *Boston, Mass.;* Builders Mutual Casualty Co., *Madison, Wis.;* Central Mutual Casualty Co., *Kansas City, Mo.;* Employers Mutual Casualty Co., *Des Moines, Ia.;* Employers Mutual Liability Insurance Co., *Wausau, Wis.;* Exchange Mutual Indemnity Insurance Co., *Buffalo, N. Y.;* Federal Mutual Liability Insurance Co., *Boston, Mass.;* Hardware Mutual Casualty Co., *Stevens Point, Wis.;* Interboro Mutual Indemnity Insurance Co., *New York City;* Jamestown Mutual Insurance Co., *Jamestown, N. Y.;* Liberty Mutual Insurance Co., *Boston, Mass.;* Lumbermens Mutual Casualty Co., *Chicago, Ill.;* (American) Lumbermens Mutual Casualty Co. of Illinois, *New York City;* Merchants Mutual Casualty Co., *Buffalo, N. Y.;* Michigan Mutual Liability Co., *Detroit, Mich.;* Mutual Casualty Insurance Co., *New York City;* Texas Employers Insurance Association, *Dallas, Tex.;* U. S. Mutual Liability Insurance Co., *Quincy, Mass.;* Utica Mutual Insurance Co., *Utica, N. Y.*

DISTINCTION



Drawn especially for Amrad Radio by John Richard Flanagan

(Left) The AMRAD SONDO Model. A new electric phonograph and radio combination incorporating the latest eight tube AMRAD Screen Grid, Neutrodyne chassis and the new AMRAD Type 249 Dynamic power speaker in a cabinet pronounced the most beautiful ever produced. It contains two wells for records. Priced at $240, less tubes.

GOBELIN . . . . a name that has woven its magic significance into the pattern of centuries, as symbolizing a sublime achievement . . . . a better thing than all other craftsmen of the world, however skilled, might hope to produce.

This genius was present in the little family of French dyers that seemed to possess methods and imagination unparalleled heretofore. Two brothers they were . . . . Gilles and Jean, of Rheims, and a dyeing establishment was set up in the Faubourg Saint Marcel. Along the measured course of this ancestral line, with Paris whispering of the wizardry of their skill, fame and fortune came . . . . and «GOBELIN» was more than a name . . . . it was a *tradition.*

Henry IV purchased the property, and tapestry-makers, under his patronage, continued the highly specialized work. It was in 1662 that Louis XIV brought illustrious personages to admire the output of the «Meubles de la Couronne». There could be nothing better than a «Gobelin» . . . . and there was no substitute for a «Gobelin».

AMRAD has come to be identified with qualities of supreme perfection in Radio . . . . a beautiful, and a scientifically advanced weaver of the tapestry of melody and the voice of the universe. AMRAD, then, is to radio what Gobelin has always been to tapestry.

(Right) The AMRAD RONDEAU Model. A magnificent cabinet enlivened with exquisite carved decorations. The set is the latest AMRAD eight tube screen Grid, Neutrodyne chassis. The new AMRAD Type 249 Dynamic power speaker is incorporated. Automatic volume control maintains a practically uniform volume. Priced at $150.00 less tubes.

AMRAD DIVISION *of*
THE CROSLEY RADIO CORPORATION
Powel Crosley, Jr., *Pres.*, Home of «*the Nation's Station*» WLW
CINCINNATI

AMRAD *Radio*

the Chief.... is still chief

Fastest and most exclusive train to Southern California

Warm winter days in the desert and
along a sparkling seashore await you in

California and Southern Arizona

Santa Fe "all the way" from Chicago and Kansas City. You leave on the Santa Fe and arrive on the Santa Fe.

All-expense tours on certain dates this winter. . . . Fred Harvey dining service — another distinctive feature.

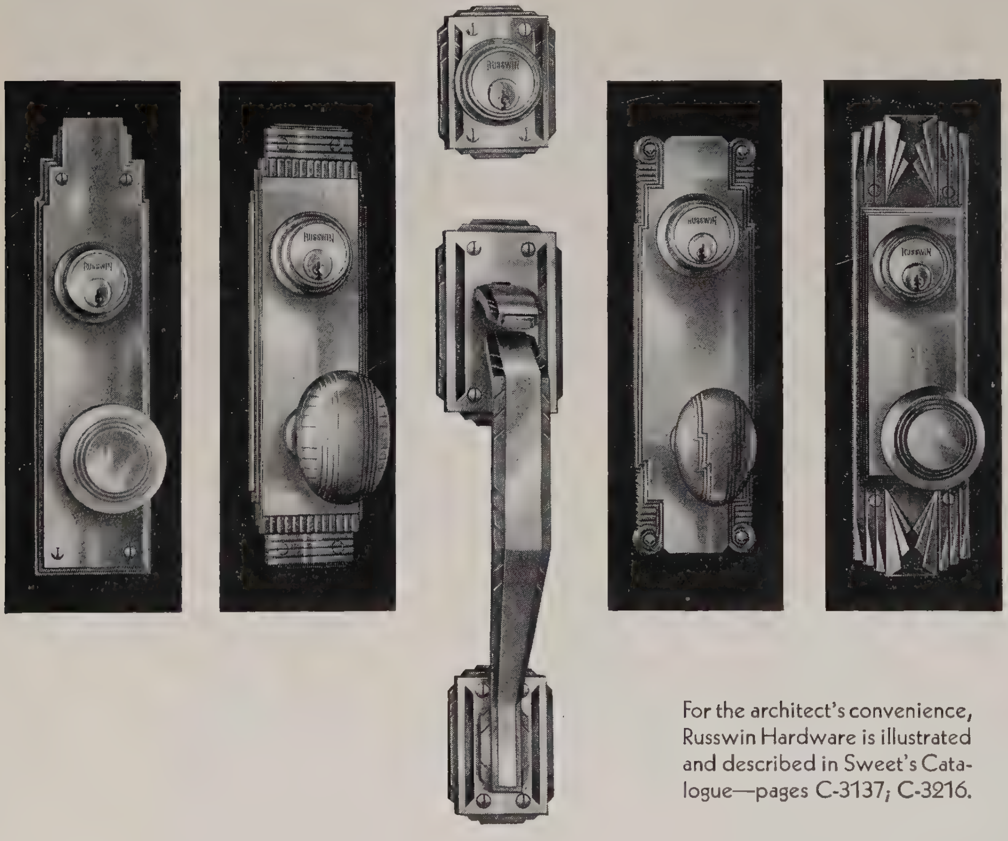
Hawaii Boat-Train—Through Pullmans leave New York Jan. 20 and Feb. 17, via Santa Fe "Chief" from Chicago a day later, connecting at Los Angeles with L. A. S. S. Co. "City of Los Angeles," sailing Jan. 24 and Feb. 21.

Mail Coupon ➔

W. J. Black, Pass. Traf. Mgr., Santa Fe System Lines, 914 Railway Exchange, Chicago, Ill.
Please mail folders checked below:
☐ California Picture Book ☐ Arizona Winter ☐ The Indian-detours
☐ California Hotel Rates ☐ All-expense Tours
*Name*__________ *Address*__________

MODERNISTIC creations in HARDWARE by RUSSWIN

Five exclusive Modernistic designs by Russwin are shown on this page. The illustrations are about one fourth size. Russwin, acknowledged originator of distinctive Modernistic hardware of the finest metals (Bronze or Brass), is constantly adding to its line, thus keeping pace with all that is new and authentic in architectural thought and design. Russell & Erwin Manufacturing Company (The American Hardware Corporation, Successor), New Britain, Connecticut—New York, Chicago, London.



For the architect's convenience, Russwin Hardware is illustrated and described in Sweet's Catalogue—pages C-3137; C-3216.

R&E
SINCE 1839
RUSSWIN
~~RUSSELL & ERWIN~~
DISTINCTIVE
HARDWARE

Hardware that lasts – Base Metals of Bronze or Brass

WHY NOT
Be Comfortable
when you
read?

Complete Relaxation Without Eye-Strain—A New Delight for All Who Read—A Lifelong Investment in Convenience

If you like to read, here is a convenience you have long been looking for. Now you sit back in your favorite chair, adjust the Mitchell Lap Table at precisely the proper angle and read in solid comfort! No eye-strain. No tedious holding of the book or magazine. Your body muscles are at rest; your energies concentrated on the message before you. One of life's most pleasant recreations is made even more pleasant!

Dozens of Uses

The Mitchell Table enables you to read or breakfast comfortably in bed; to write, figure or draw in your coziest chair. A blessing to invalids; an appreciated convenience on vacation, in traveling and at outings; a distinctive and useful gift.

Endorsed by Hundreds

"I've always wanted something of the kind but did not know it was on the market."—Mrs. E. H. Blanchard, St. Louis.

"Wonderful, well worth the money." B. Kessler, Vineland, N. J. Appreciated by all who know the joy of reading and the value of conserving the eyes.

Lasts a Lifetime. Special laminated wood panels, beautifully finished in *walnut* or *mahogany*. Metal parts of steel, plated statuary bronze. Nothing to wear or get out of order. Size, 12 x 17 inches. Folds flat when not in use.

Five Days' Free Trial—Send for a table today. Enjoy the comfort of easy reading, in bed or your easy chair. See the healthful effect on children. Note the many uses. If not delighted in five days, return the table and your money will be refunded in full; otherwise it is yours for a lifetime of service. The coupon is for your convenience. Won't you send it in today?

At last a means of eating comfortably in bed. An ideal gift for invalids.

Write, sketch or draw in your favorite easy chair.

Read in bed without eye-strain or muscle strain. (Price of lamp complete with cord and bulb, $5 extra.)

An Ever-Appreciated Christmas Gift

"Price, $6.50 complete. Mahogany or walnut finish. Write for descriptive circular or, better still, try the Mitchell for 5 days in your own home."

MITCHELL MOULDING CO.
Dept. 3211, Forest Park, Ill.

Send me, postpaid, a Mitchell Lap Table in ☐ Mahogany ☐ Walnut finish. I will pay the postman $6.50 on delivery. It is understood I have the privilege of returning the table within 5 days if not entirely satisfied. (Send check with coupon if you prefer.)

Name ____________________________

Street Address ____________________

City ______________ State__________

☐ Check here if lamp is also desired. Price $5.

Money Back if Not Satisfied

WHEN WINTER COMES!

WEST INDIES . . . THANKSGIVING DAY CRUISE
12 DAYS . . . NOV. 18 TO NOV. 30 . . . $150 UP

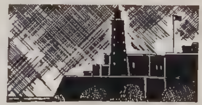
Celebrate Thanksgiving Day differently this year . . . Cruise to Bermuda, Nassau . . . and Havana . . . in the Cunarder Franconia.

PRE-CHRISTMAS CRUISE
16 DAYS . . . DEC. 2 TO DEC. 18 . . . $175 up

Do your Christmas shopping in the West Indies . . . it's cheaper via Cunard than staying at home. 16 Days in the Franconia to Port-au-Prince, Kingston, Colon, Havana and Nassau. 8 other Cunard Cruises varying in duration from 8 to 18 days . . . with sailings up to April 16. Rates from $111 up, with shore excursions $126 up.

EGYPT and the MEDITERRANEAN

Join the Annual Classic Mediterranean Cruise . . . The renowned Mauretania sails from New York Feb. 21 . . . returns via Southampton. Rates: N. Y. to Madeira, Gibraltar, Tangier, Algiers, Villefranche, Naples $275 up. N. Y. to Athens, Haifa, Alexandria $350 up. N. Y. to N. Y. $840 up.



HAVANA SERVICE . . . The "Caronia" and "Carmania", big ships that exceed by thousands of tons any other steamer in Havana Service, sail every Wed. and Sat. . . . N. Y. to Havana . . . First Class: $90 up, round trip $170 up. New Year's Eve Cruise to Nassau and Havana Dec. 26 . . . 8 days $170 up.

Send for descriptive literature to your
local agent or 25 Broadway, New York

CUNARD

When Dull Film Covers Teeth Smiles Lose Fascination

Film
is found by dental research to play an important part in tooth decay . . and to cause unsightly stains.

CONSTANTLY new theories are advanced as to the cause of tooth decay. Some authorities say it's germs. Others believe it's faulty diet. And the rest hold it a combination of the two.

But one thing is positively known: wherever trouble and decay appear, *germs are always present.* Thus ridding teeth and gums of germs is the first thing one must do to keep teeth strong and healthy.

Germs live in film

Your teeth are covered by a stubborn, clinging film. In it—tightly glued in contact with the teeth—are the germs that cause decay and other troubles. Your protection lies in never failing to remove that film from teeth each day.

Film ruins the appearance of the teeth by absorbing stains from food and smoking . . . how many times have you noted these dark discolorations on enamel?

The sure way to remove this dangerous film is with Pepsodent, as that is the sole purpose for which Pepsodent was developed.

Pepsodent contains no pumice, no harmful grit or crude abrasives. It has a gentle action that protects the delicate enamel. It is completely SAFE . . . . yet it removes dingy film where ordinary methods fail.

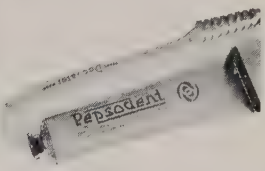
Have lovely, sparkling teeth! Be safe! Use Pepsodent, for no other way can equal its effectiveness.

* * *

Amos 'n' Andy America's most popular radio feature. On the air every night except Sunday over N. B. C. network. 7:00 p. m. on stations operating on Eastern time. 10:30 p. m., Central time. 9:30 p. m., Mountain time. 8:30 p. m., Pacific time.

Do These 3 Things
to have strong, healthy teeth

1. **Include these foods daily:** *one or two eggs, raw fruit, fresh vegetables, head lettuce, cabbage or celery. ½ lemon with orange juice. One quart of milk.*



2. **Use Pepsodent twice every day.**

3. **See your dentist at least twice a year.**

Pepsodent —the tooth paste which presents you with the Amos 'n' Andy radio program.

THIS IS THE SEASON FOR TRANSATLANTIC VALUES

. . . observe these!

United States Lines offers you luxurious passage on the mammoth LEVIATHAN, World's Largest Ship . . . a large, beautifully appointed First Class stateroom . . . the amenities of the gorgeous Club Leviathan . . . Ben Bernie band of entertainers . . . first-run "Talkies" . . . ship-to-shore telephone service . . . Pompeian Pool . . . magnificent cuisine . . . flawless service . . . 5 day 6 hour speed . . . for as low as $272.50. "Grade A" Tourist Third Cabin LEVIATHAN—$216 Round Trip. Or superfine service from those palatial cabin liners — George Washington, America, Republic, President Harding and President Roosevelt—$132.50 to $155. Or sailings every Thursday, New York to London direct on one of the five fine American Merchant Line ships . . . one class . . . selective list . . . $100. Yes, this is the season of American transatlantic values — choose your ship!

●

DE LUXE 16-DAY WEST INDIES CRUISES $175, ***including shore excursions***

Five sailings to select from . . . Dec. 20, Jan. 10, Jan. 28, Feb. 15 and Mar. 7! Your ship the magnificent REPUBLIC. Sail from Philadelphia . . . 4,000 miles of tropical seas . . . four famous pirate ports . . . Nassau, Kingston, Cristobal, Havana. First cruise gives you Christmas on the beautiful isle of Jamaica, New Year's Eve in Havana—two dramatic settings. No passports required.

For information, literature, deck plans, etc., communicate with your local steamship agent or our nearest office.

UNITED STATES LINES

For complete information see your local agent or our offices: New York, 45 Broadway; Atlanta, 714 Healy Building; Boston, 75 State St.; Chicago, 216 N. Michigan Ave.; Cleveland, Hotel Cleveland Building; Detroit, 1514 Washington Boulevard; St. Louis, Jefferson Hotel; Philadelphia, 1600 Walnut Street; San Francisco, 691 Market Street; Los Angeles, 756 South Broadway; Minneapolis, 312 Second Ave., South; Seattle, 1337 Fourth Avenue; Pittsburgh, 705 Liberty Avenue; Washington, 1027 Connecticut Ave.; Little Rock, Wallace Building; New Orleans, Hibernia Bank Building; Berlin, Unter den Linden 9; Hamburg, Cor. Alsterthor and Ferdinandstrasse; London, 14 Regent Street, S. W. 1.; Paris, 10 Rue Auber. THESE LINES OFFER A COMPLETE FREIGHT SERVICE—SPECIFY AMERICAN SHIPS FOR YOUR FOREIGN TRADE!

SUNNY SAN ANTONIO

"Every American-Should See San Antonio"

Come travel back along the inspiring trail of San Antonio's history. Its missions—outposts of civilization in America—were old when the Declaration of Independence was signed! The Alamo, where patriots died for Texas liberty, still stands.

"Every American should see San Antonio" is the exclamation of travelers thrilled at the charm of this city, with its blending of the best traditions of colonial Spain, the old South and the robust West.

Here is a cosmopolitan center in which 20th century pioneers are creating wealth and finding happiness. Join them *this* winter, whether for pleasure or profit!

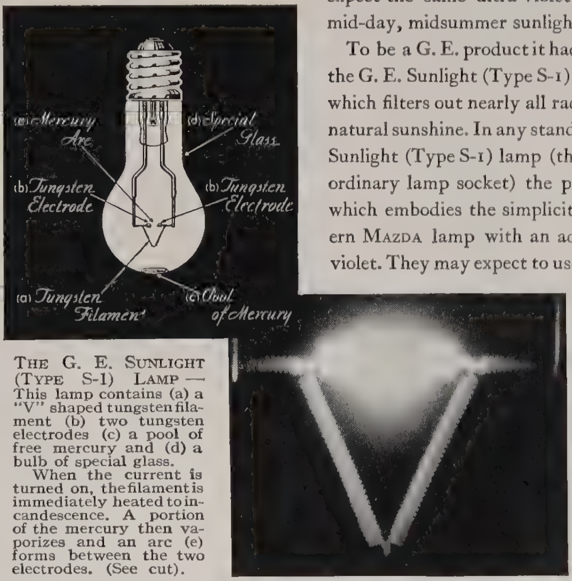
San Antonio

For Free, Illustrated Booklet, Write Dept. 38
MUNICIPAL INFORMATION BUREAU
Aztec Building San Antonio, Texas

THE SECOND OF A SERIES OF ADVERTISEMENTS DEALING WITH ULTRA-VIOLET RADIATION IN THE HOME

W*hat may we expect of* ULTRA-VIOLET *Radiation?*

SCIENCE has analyzed the sun and found that, besides light and heat, it gives off tiny invisible waves (70,000 to the inch), known as Ultra-Violet rays, which have a profound effect upon all manner of life. Just as our eyes are receiving sets tuned to the mighty broadcasting of light given off by the sun, so our skin is tuned to the invisible health waves sent out by the same source. Though they penetrate the skin no deeper than the thickness of this sheet of paper, these rays are able to work deep changes throughout the entire body. Vitamin D—the sunshine vitamin—is produced only under its influence. This vitamin is an aid in the depositing of calcium and phosphorus and other minerals in the bones.



THE G. E. SUNLIGHT (TYPE S-1) LAMP — This lamp contains (a) a "V" shaped tungsten filament (b) two tungsten electrodes (c) a pool of free mercury and (d) a bulb of special glass.
When the current is turned on, the filament is immediately heated to incandescence. A portion of the mercury then vaporizes and an arc (e) forms between the two electrodes. (See cut).

These vital rays stir up many of us mentally. They help to build up resistance to disease. They tan our skins (though it is not necessary to tan to receive the benefits of ultra-violet radiation). They are a powerful aid in the maintenance of health.

But Ultra-Violet, artificially produced in the home, should not be regarded as a "medicine." It should be regarded in the same light as fresh air, pure water and wholesome food. And like all of these essentials of health it should be used with moderation.

Like all great discoveries, Ultra-Violet radiation has been the subject of much misconception and misunderstanding on the part of the public. Its curative powers, in general use, have been exaggerated, in some cases by commercial exploiters. Ultra-Violet radiation is not a "cure-all." It is not a substitute for the services of a physician in the case of illness or disease. In all cases where Ultra-Violet radiation is indicated *as a treatment of disease*, the attending physician should prescribe and supervise the treatment.

For many years, as the world's largest manufacturer of things electrical, the General Electric Company has sought, in its vast laboratories, a means of making the known, health-maintaining qualities of Ultra-Violet available to the general public. The result is the General Electric Sunlight (Type S-1) lamp.

To be worthy of a place in the long line of General Electric products, this lamp had to be efficient. It is. It is not merely a "heat" lamp. At a distance of three feet, from a standard utilizing the G. E. Sunlight (Type S-1) lamp, the public may expect the same ultra-violet effectiveness as is found in mid-day, midsummer sunlight.

To be a G. E. product it had to be safe. It is. The bulb of the G. E. Sunlight (Type S-1) lamp is made of special glass which filters out nearly all radiation not found in the best natural sunshine. In any standard or fixture using the G. E. Sunlight (Type S-1) lamp (the lamp cannot be used in the ordinary lamp socket) the public may expect radiation which embodies the simplicity and economy of the modern MAZDA lamp with an adequate supply of safe ultra-violet. They may expect to use such equipment freely—for irradiating the children as they play or dress—as a reading lamp beside their easy chairs—as a lamp to stretch out and relax under as it stands by the couch or bed—as a wonderful sewing light—as a means of obtaining "sunlight" in the bathroom while shaving—these and in many other ways.

Just as the vacuum tube is the heart of radio, so the G. E. Sunlight (Type S-1) lamp is the heart of modern man-made sunlight. Every one who expects to obtain the *full* benefits of ultra-violet radiation this winter should insist that the sun lamp they buy uses the G. E. Sunlight (Type S-1) lamp as its source of energy. It is sold in accordance with the requirements of the Council of Physical Therapy of the American Medical Association and is backed by the greatest name in electricity.

The Incandescent Lamp Department
of General Electric Company
Nela Park, Cleveland, Ohio

GENERAL ELECTRIC
SUNLIGHT (TYPE S-1) LAMP

Join us in the General Electric Program, broadcast every Saturday evening on a Nation-wide N. B. C. Network.

UNICLOK

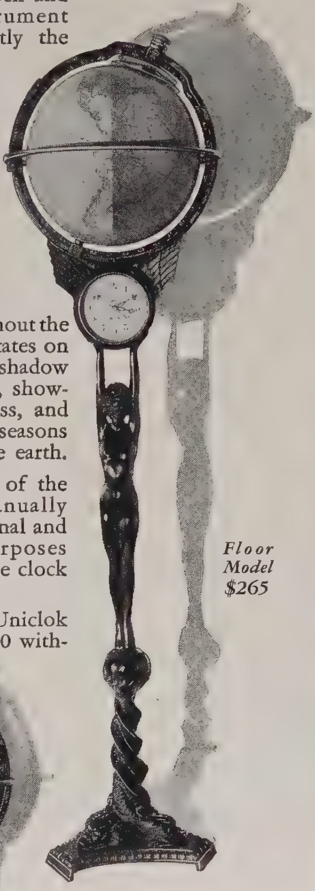
A Marvelous Illuminated Globe . . . Telechron Operated

. . . An electrical clock and chronological instrument which shows instantly the correct time all over the world, the period of day and night, the seasons, and position of the earth and sun in their proper relations to their respective orbits.

The translucent globe is illuminated from within, realistically representing day and night throughout the world. The globe rotates on its axis once a day; the shadow revolves once a year, showing daylight, darkness, and the rotation of the seasons as they exist on the earth.

The globe element of the Uniclok can be manually operated for educational and demonstration purposes without disturbing the clock mechanism.

Manually-operated Uniclok Globes start at $27.50 without Telechrons. Complete manual and text book supplied with each Uniclok. They are sold by Telechron dealers and power company stores everywhere in the United States. If you have difficulty in obtaining a Uniclok we will supply it direct.



Floor Model $265

Table Model, $210

Patents pending in U. S. A. and foreign countries.

UNIVERSAL CLOCK & GLOBE CORP.
34th and Market Sts. Wilmington, Delaware

Please send us literature on Uniclok Globes.

____

____

Slip away...

to the

SUNSHINE PORTS

● In Sicily, Etna belches smoke. In Jerusalem, the faithful wail at the Wall. In Dubrovnik, shops dazzle with embroideries and armor. Next winter, slip away from humdrum to this 73-day epic! The Empress of France and her yacht-like appointments are on the New York-Paris scale. Hers is the cruise with the "5th Ace." Canadian Pacific's famous one management, ship and shore. 8th season. From $900. Booklets, ship plans, from your own agent or any Canadian Pacific office in 35 cities of the United States and Canada. ●

MEDITERRANEAN CRUISE

WORLD'S GREATEST TRAVEL SYSTEM

Canadian Pacific

●**LISTEN IN:** *Canadian Pacific Broadcasts . . . Sunday, 4:15 EST: The Musical Cruisaders... Wednesday, Midnight EST: Royal York Dance Orchestra... Programmes produced in Canada. WJZ and associated NBC stations.*

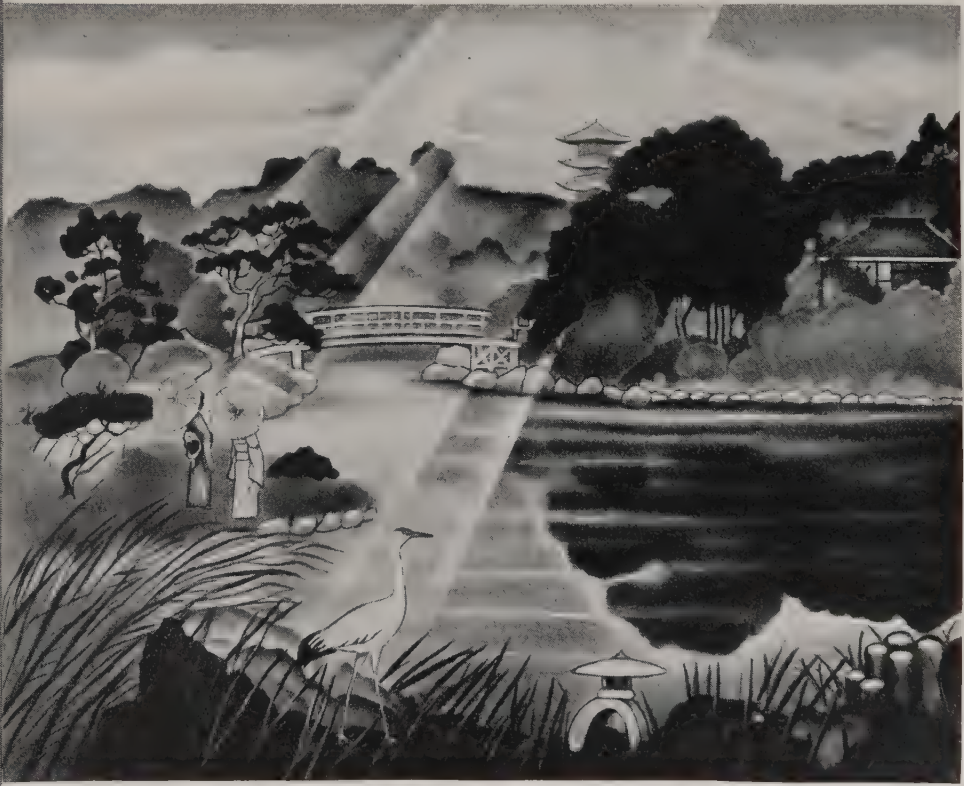
GARDEN OF THE WORLD

IN Japan, the garden represents an ancient art, handed down through the centuries. Gardens, brilliant in their grandeur . . . gardens, exquisite in their simplicity . . . everywhere, man and nature have worked hand in hand through the generations to cultivate this vast garden of the world.

In the midst of this age old beauty, stands practical, present-day Japan — a most modern institution with up-to-the-minute railway systems, cosmopolitan cities and hotels. Here are sporty golf links, tournament tennis courts, polo and all other sports and amusements. Truly, Japan strikes a perfect balance in blending the old with the new.

And it is all so very near to the tourist. In sixty days one can make a comfortable, luxurious and really economical visit to Japan and the Orient. Thanks to Japan's ultra-modern facilities, even a short visit allows ample time for poking into the remotest nooks and crannies, exploring new lands, viewing the lovely rites and ceremonials, seeing many strange places and sights

The Japan Tourist Bureau, a non-commercial organization, will be honored to cooperate with tourists in arranging a trip to the Orient . . . planning itineraries, recommending hotels, steamers, sailing dates. It will suggest where to go, what to see, and estimate the cost of the trip. The Bureau's vast facilities, all over the world are at the tourist's disposal without charge.



The wonderlands of Japan, Korea, Manchuria and China are reached from the United States and Canada by the Nippon Yusen Kaisha, Osaka Shosen Kaisha, the American Mail Line, Canadian Pacific and the Dollar Steamship Line. Full information will be furnished by any of these Lines, any tourist agency, or by the Japan Tourist Bureau. Write for booklet.

JAPAN
TOURIST BUREAU
c/o Japanese Gov't Railways, One Madison Ave., N. Y. C.
c/o Nippon Yusen Kaisha, 545 Fifth Ave., N. Y. C.

TWO NEW LUXURY LINERS
to HAVANA
"MORRO CASTLE"
"ORIENTE"

THE Havana season makes its bow more brilliantly than ever this year with the new "MORRO CASTLE" and "ORIENTE" in the run.

Proudly these new American ambassadors speed with steady, vibrationless thrust over a shorter, pleasanter route to Havana. Shorter for the hours they clip from the previous running time; pleasanter for their smart, modern atmosphere and the smoothness of their turbo-electric drive. Modern vessels, these,—well worthy of their fame as the most luxurious of their class afloat.

All-Expense Tours, 10 Days—$140 up

including first-class passage, accommodations at Hotel Plaza or Hotel Ritz, all meals and four sightseeing trips in and about Havana. Other inexpensive tours for 11, 13, 15 and 17 days.

SPECIAL CHRISTMAS AND NEW YEAR'S TRIPS TO HAVANA

A variety of attractive itineraries providing for Christmas or New Year's day, or both, either at sea or in Havana.

General Passenger Dept., Foot of Wall St.
Uptown Ticket Office, 545 Fifth Ave., New York,
or Any Authorized Tourist Agent

WARD (AGWI LINES) LINE

EUROPE . . .

. . . . . . by MOTOR

A Rolls-Royce, a Daimler, or an Hispano-Suiza is at your service to take you leisurely on your way through Europe. An intelligent chauffeur-courier, English-speaking, pilots your car and attends to all details en route. Itineraries, carefully planned ahead for all European countries, relieve you from every worry and care. An American staff of travel experts in our many offices abroad is always at your service. Write for booklet A, "Europe by Motor".

FRANCO-BELGIQUE TOURS CO., INC.
551 Fifth Ave. New York, N. Y.

By MOTOR
thru **EUROPE**

Five Countries by Motor, $395

See England, Holland, Belgium, Germany and France. Other tours from $250 to $1007. Itineraries to every country in Europe. Price includes all expenses on ship and shore: ocean passage, hotels and meals, guide service, all travel in Europe by motor, admissions to galleries, museums, etc., even your tips! Ask for Booklet "E31" describing this and hundreds of other tours.

THE TRAVEL GUILD, INC.
180 North Michigan, Chicago, Illinois
521 Fifth Ave., New York City

TRAVEL—*The Greatest Educator*

ALL EXPENSES
$385 TO
$1007
WRITE FOR
BOOKLET E31

SOUTH-AMERICAN
TOURS
ALL EXPENSES INCLUDED
HAVANA — PANAMA
21 DAYS $275
PERU ● CHILE
28 DAYS $415 49 DAYS $575
For folder, etc., address Dept. 72
PACIFIC LINE
THE PACIFIC STEAM NAVIGATION CO.
24 Broadway, New York, or Your Local Agent

have you a DOG?

He's a friend worthy of proper care. Much depends on his food. Ken-L-Ration is a prepared food . . . developed by scientists . . . containing meat, cereals, cod-liver oil and charcoal, in proper proportions for everyday feeding.

Rin-Tin-Tin and many other valuable dogs are fed Ken-L-Ration exclusively.

There are many imitations, but Chappel's is the original balanced ration. Ask for it by name. It is packed in sterilized cans; ready to feed without muss or bother. Sold by over 100,000 retail stores . . . there is one in your neighborhood.

CHAPPEL BROS., Inc.
89 Peoples Ave., Rockford, Ill.

Send for FREE Sample

KEN-L-RATION

KEN-L-RATION
THE DOG FOOD SUPREME

JOHN HANCOCK SERIES

How much should I lay aside for Life Insurance?

HERE is the actual program of a young man, 28, married, with two children.

His income is $5,000 a year. How much of this should he lay aside for Life Insurance?

The annual premiums amount to about $600, leaving a balance of $4,400 for the support of his family, an easy proposition for ambitious young parents looking to the future.

What does he get for his $600?

An estate of $30,000, $5,000 to be paid in cash at his death, the rest held in a trust to provide $100 a month to his widow during her lifetime.

If you are interested in arranging an estate for yourself, let us help you make your plan.

John Hancock
MUTUAL
LIFE INSURANCE COMPANY
OF BOSTON, MASSACHUSETTS

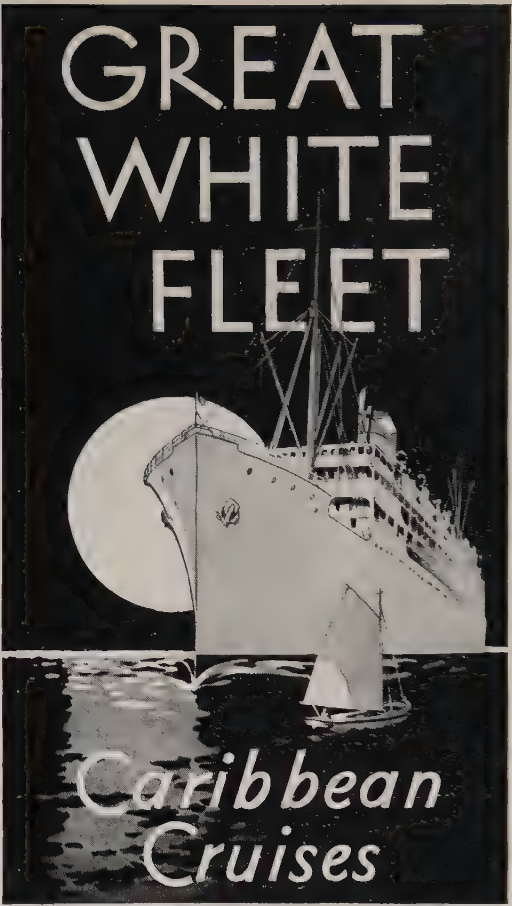
Inquiry Bureau, 197 Clarendon St., Boston, Mass.

I am interested in building an estate along these lines. lease send booklet, "This Matter of Success."

me..

ress..

OVER SIXTY-FIVE YEARS IN BUSINESS



Ships and men of the Great White Fleet know their tropics...a matter of prime importance to the traveler in the Caribbean. It means cruises planned by experience, and ships specifically designed for the traveling guest's every comfort. » » »

Wide decks for games, promenading, and luxurious lounging...outside staterooms open to the sea breeze...excellent food prepared by chefs experienced in the art of tempting palates. » » »

Great White Fleet ships sail from New York twice weekly, New Orleans three times weekly. Cuba... Panama...Colombia...Jamaica...Costa Rica...Guatemala...Honduras. Cruises 16 to 24 days, all expenses included. All first-class cabins. Full details from

Passenger Traffic Department
UNITED FRUIT COMPANY
● Steamship Service ●
Room 1624, 17 Battery Place, New York City

CRUISES
$225 and up

Row Your Way to Health

with the

GYM-BOAT

The only Hydraulic Home-rowing machine —no springs—nothing to get out of order

Keeps Dad Fit **Builds Up Junior**
Reduces Abdomen and Hips

EXERCISES THE WHOLE FAMILY

Rowing's the finest exercise—enjoy its benefits right in your own home. The Gym-Boat is a simple machine that is good for inactive muscles and lazy circulation. It makes you breathe deeply—stirs up stagnant blood and gives your body a healthy glow . . . loosens up stiff joints and keeps them supple—replaces surplus fat with solid flesh and muscle!

Five Minutes A Day Brings Health To Stay

Once you've rowed the Gym-Boat you'll feel the difference in a single day. Excellent for grown-ups, children—a boon to office workers and professional people. Recommended by physicians. So compact that it fits under the bed or in a closet—and so light that a child can carry it.

See your doctor twice a year; row your GYM-BOAT once a day.

The GYM-BOAT is modestly priced—you are offered an unusually liberal payment plan plus a money-back guarantee. Write for illustrated booklet NOW. Use the coupon below.

J. W. COOPER & CO.
377 Fourth Avenue, New York City

Without obligation please send Free Booklet G "All About the Gym-Boat."

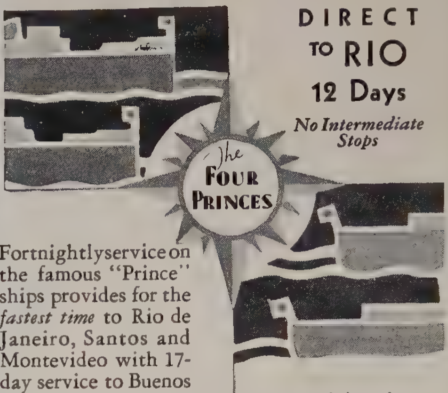
Name ....

Address ....

City .... State ....

Would you care to have a representative call? ....

SOUTH AMERICA



DIRECT TO RIO
12 Days
No Intermediate Stops

Fortnightly service on the famous "Prince" ships provides for the *fastest time* to Rio de Janeiro, Santos and Montevideo with 17-day service to Buenos Aires. The travel-wise select the super-luxury liners "Northern Prince," "Eastern Prince," "Southern Prince" or "Western Prince" for a fast, safe voyage.

Accommodations for first-class passengers only. Reservations and literature at authorized tourist agents or Furness Prince Line, 34 Whitehall St. (where Broadway begins), or 565 5th Ave., N.Y.C.

'ROUND WORLD TOURS—108 DAYS—23 PORTS—$680

FURNESS *Prince* LINE

Prince Line Service has been continuous between New York and South America for 35 years

---

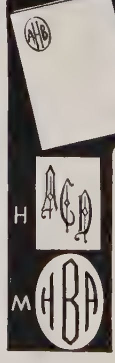
Binoculars add fun to every trip on land or on the sea.

Bausch & Lomb Binoculars for Christmas

Nothing finer for Son or Dad. A lifetime gift. At optical and better sports shops. Catalog sent free.

BAUSCH & LOMB OPTICAL CO.
724 St. Paul St., Rochester, N. Y.

Fifth Avenue Personal Stationery



THE IDEAL XMAS GIFT

Exquisite Stationery Monogrammed, or with Name and Address in Lustrous Raised Letters LIKE DIE ENGRAVING. Do not confuse ordinary printing with this high quality engraved effect.

Club Size, 6¾ x 5½. 100 Single Sheets and 100 Envelopes lettered and 100 plain sheets OR 100 folded sheets and 100 envelopes lettered **$2**

Can be ordered in **Linen, Vellum or Ripple Finish** Paper, White or French Grey.

Marking Colors: Black, Blue or Jade Green.
State Monogram Wanted—Initial of Surname—Kind of Paper.

Sent postpaid within a week. Enclose check or money order. West of Mississippi add 10 per cent. Satisfaction guaranteed. ILLUSTRATED Catalog of Xmas Cards, Bridge Cards and Gift Stationery mailed free.

FIFTH AVENUE STATIONERS
505 Fifth Avenue, Dept. "G," New York
Visit our showrooms, 42nd Street, 5th Avenue

DRESS SETS
COLLAR HOLDERS
TIE HOLDERS
CUFF LINKS

Men may not admit it, but . . .

Where is the man who is not flattered by a gift of handsome jewelry—if it justifies itself by being useful as well as ornamental? Krementz Jewelry is the kind men buy *for themselves!* It is smart, correct. A glance tells it's superior! It makes a *personal* gift which will be treasured, admired and *worn!* Remember that! There are handsome Krementz Evening Sets for full dress wear, and the correct sets to be worn with the Tuxedo. There are Krementz Soft Collar Holders and Tie Holders to keep "his" neckwear as "neat as a pin"—and Krementz Cuff Links in a fascinating variety of smart colors and designs.

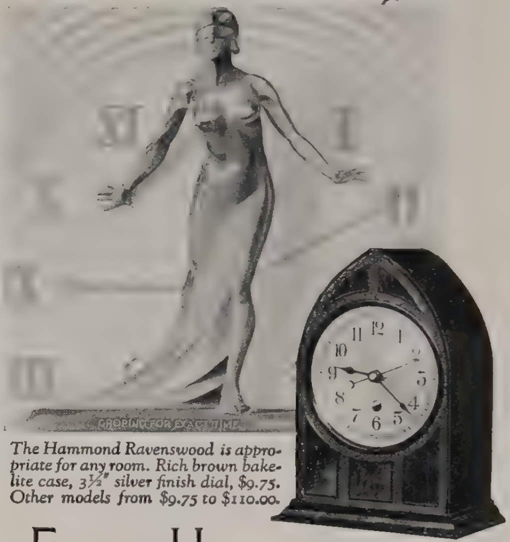
Better shops everywhere carry Krementz Jewelry.

Write for our handsomely illustrated booklet, which contains a Dress Chart, showing what is correct to wear for each and every occasion!

KREMENTZ & CO.
Makers of Fine Jewelry since 1866
Newark, N. J.

KREMENTZ
Gift
JEWELRY FOR MEN

MASTER TIME—*Electrically*



The Hammond Ravenswood is appropriate for any room. Rich brown bakelite case, 3½" silver finish dial, $9.75. Other models from $9.75 to $110.00.

Every Home Deserves This Modern Necessity

Time cannot elude this all-electric clock. You can be as confident of its continued operation and exactness as you are that light will result when you touch the electric switch. It is that simple . . . and sure.

An unending stream of electric time impulses from the light socket keeps the hands moving *always*—and always *correctly*. Winding, oiling, regulating and ticking become a thing of the past with the elimination of troublesome springs.

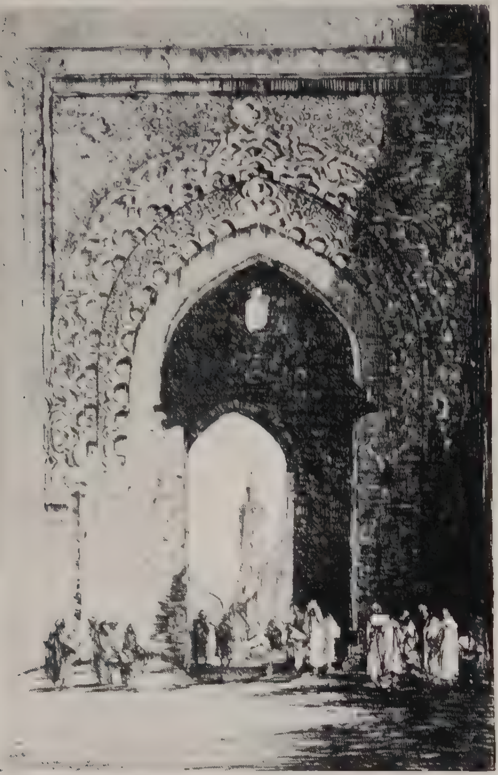
Every home needs at least one timepiece that is always exact. The times demand it. You will find just the Hammond for any room you choose at electrical, jewelry and department stores. Or you may get complete information direct by mailing the coupon today.

THE HAMMOND CLOCK COMPANY
2915 North Western Ave., Chicago, Ill. N-8
Please send me free descriptive literature giving the story of all-electric time and showing all your models.
Name……………………………………………
Address…………………………………………
City……………………………… *State*…………

HAMMOND
ALL-ELECTRIC·CLOCKS

Three 30-DAY Mediterranean Morocco-Riviera Cruises

The Continental's Winter Playground



ETCHING OF THE CHELLAH, RABAT BY W. DOUGLAS MACLEOD

THIRTY-DAY "Mediterranean-Sahara-Riviera Cruise" with live young moderns, off for the sun by the South Atlantic . . . circling the azure sea at its smartest . . . eight ports » » Not a dull moment, the "*France*" starts her gayety with her engines . . . Casablanca for a Moroccan interlude, Oasis, Sultan's paradise, the winter capital of modern sunworshippers . . . gay Algiers and the Garden of Allah . . . Italy at its loveliest . . . the Riviera and Roman France when the sky that arched over the Caesars is blue with the first spring days » » The freedom of independent travel with unlimited stopovers, or return via Havre or Plymouth . . . a ship that is the last word in luxury and chic.

"France", Jan. 10, Feb. 14, March 20

* * *

"Barbary Land Cruises" through Morocco, Algeria and Tunisia . . . a fleet of high-powered motor cars . . . 57-day itinerary **$1750;** 13-day itinerary **$200.**

* * *

Sixteen-day West Indies Cruise by "Lafayette", December 20 to January 5

French Line

Information from any authorized French Line Agent or write direct to 19 State Street, New York City

---

THE LUXURY CRUISE

MEDITERRANEAN

PALESTINE
EGYPT

Greatest Program in History of this Famous Cruising Steamer

ROTTERDAM

Leaves New York

FEB. 5, 1931

under Holland-America Line's own management

71 days of delight

A trip to the "Eternal City," Rome, without extra charge

AMERICAN EXPRESS CO. in charge of shore excursions

The Rotterdam was recently entirely modernized. You will find her a model of modern comfort. Swimming pool, gymnasium and many spacious public salons. Excellently ventilated and spotlessly clean. Service and cuisine are the last word in perfection. Enjoyable and jolly entertainment.

For choice accommodations make reservations now.

Rates from $955

Write for illustrated Booklet "N"

HOLLAND-AMERICA LINE

21-24 State Street, New York
Branch Offices and Agents in all principal Cities

COME...to the warm sunny winter of your dreams

BALMY sunshine from morn 'til night—clear blue skies—rose gardens in full bloom—out-of-doors living all the day—this is "winter" in Tucson.

Costs are always moderate here. Yet accommodations are of the best. And there's practically no end of things to do...golf...tennis...hunting...riding ...motoring...with Indian villages and Old Mexico itself only a few miles away.

Send the coupon below or wire us for descriptive booklet and full information as to hotel reservations; rentals; air, rail and highway data, etc. Winter rates and stopovers now available on both Rock Island and Southern Pacific Lines.

TUCSON
Sunshine-Climate Club
ARIZONA
1004-A Old Pueblo Bldg., Tucson, Arizona
Please send me the free "Sunshine Booklet"

Name ____________________

Address ____________________

MOLLOY-MADE GEOGRAPHIC BINDERS

Beautifully embossed artificial leather in the Geographic design; two-tone brown with gold panel; backbone stamped in genuine gold. Each binder holds six issues; stiff, washable covers, in *colors that will not rub off.*

Bind Them Yourself. With the improved Molloy device you can bind your own Geographics without sewing or gluing. Your entire Geographic Library can now be placed in uniform bindings, whether you bind them yourself or send them to any bookbinder.

Let Any Bookbinder Bind Them. Any Bookbinder can now obtain Molloy-Made Covers in exactly the same design, colors and finish for binding your Geographics into beautiful, permanent, flat-opening, sewed volumes. No need to ship them to distant points! Same guaranteed fine appearance and wearing quality as Molloy binders heretofore supplied. Look for trade-mark on back cover. Insist on genuine Molloy-Made Covers. Supplied for all years back to 1910.

Use coupon for free inspection offer if you live in the United States. Customs regulations require full payment with postage on foreign orders (shipping weight, 2 pounds per pair). Postage prepaid in U. S., Canada, and Mexico.

THE DAVID J. MOLLOY COMPANY
2863 North Western Avenue, CHICAGO

THE DAVID J. MOLLOY COMPANY
2863 North Western Avenue, Chicago, Ill., U. S. A.

Please send on approval................pairs of Molloy Geographic Binders, Volumes.............Years ....

Within ten days I will pay for them at the regular price of $3.65 a pair, or $2.00 a single cover, or return the binders to you.

Name ....

Address ....

....

Full payment and postage must accompany foreign orders.
Foreign remittances returned if binders are not satisfactory.

This Christmas... a Graflex!

For the Whole Family

GRAFLEX is different...superior. You see in the focusing hood a full-picture-size image of your subject in exact focus, up to the very instant of exposure. Fine lens, shutter fast as lightning, yet easy to operate—Graflex gets the difficult pictures—makes artistic composition easier, ends guesswork in focusing.

A Graflex Camera is a *continuous* present to members of the family absent from the fireside as well as those present—to Mother and Dad it is a source of real pride.

When children are young—a Graflex by all means! It's the Camera for capturing the most fleeting, most beloved expressions of swift-changing childhood—wonderful for artistic enlargements—real treasured mementos when mailed to the folks at home.

To youngsters in their 'teens a Graflex brings popularity as well as pleasure. Bob off at college—with the one camera for fast moving athletics. Sue at school or summer camp, able to take the finest of all the pictures.

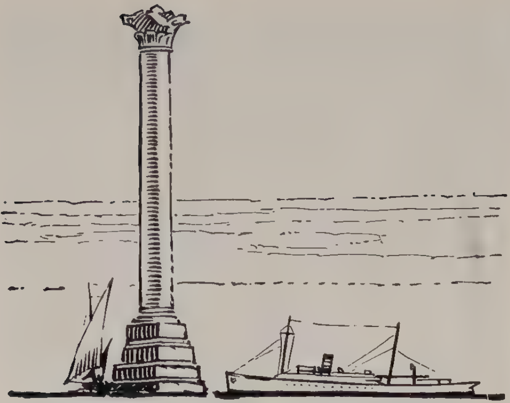
Don't Put It Off! See Nearest Dealer Today!

GRAFLEX

FOLMER GRAFLEX CORP. . . . ROCHESTER, N.Y.

Folmer Graflex Corp., *Dept. 66,* Rochester, N.Y.

Please send booklet titled "Why a Graflex?", regarding the simply-operated camera that ends guesswork in focusing...to name and address on margin of this page.



Maiden Voyages of the Magnificent New Liners

EXCALIBUR January 24, 1931

EXOCHORDA February 25, 1931

Inaugurating an improved Express Service for

EGYPT AND THE HOLY LAND

Let us tell you what our 41-day wonder journeys (New York and return) will show you—happily at rates fitting your budget.

All cabins outside with modern beds but limited to two persons . . . Cozy loge decks giving perfect privacy so desirable for parties.

Secure booklets, information and reservations from local agents or

AMERICAN EXPORT LINES

THE EXPORT STEAMSHIP CORPORATION
Dept. D, 25 Broadway, New York

Boston: 126 State St.
Baltimore: Keyser Bldg.
Chicago: The Rookery
Philadelphia: 408 Bourse Bldg.

INDIA
AUSTRALIA
FAR EAST
BY
PENINSULAR AND ORIENTAL
AND
BRITISH INDIA STEAM NAVIGATION COMPANIES

The recognized way to India, Australia and the Far East is by P. and O. Regular frequent sailings from London and Marseilles, by large, modern, superbly equipped liners. Through bookings to Egypt, Sudan, India, Persian Gulf, Burma, Ceylon, Straits Settlements, China, Japan, East and South Africa, Mauritius, Australasia, etc. . . . Round the World Tours.

Write for illustrated catalogue covering services and fares.

CUNARD STEAMSHIP CO.
General Agents
25 Broadway, New York

Pecans

Fresh, rich and wonderfully delicious are the pecans from Pecanway. Thin shells that can be cracked by hand and the meat extracted whole.

Fresh!

Direct to You by Mail

Pecanway Nuts are shade-cured for sweetness. Solid meat of the finest texture, free from all bitterness. Order a gift package today for yourself or friend. Money returned if not satisfied.

Reduced Facsimile

3-lb. Package, $3.00 **5-lb. Package, $5.00**
West of Mississippi add 50c for Postage
M. O. Dantzler, E. Pecanway Place, Orangeburg, S. C.

MINIATURES

On Porcelain or Ivory

A Priceless Possession or Ideal Xmas. Gift!

A miniature on porcelain, square or oval, beautifully colored, 3¼ x 4¼ inches, including a gold-plated frame, regular $40.00, for – **$17.50**

A miniature on ivory, painted by a well-known and reputable miniature painter, regular $250.00, for **$125**

These miniatures can be painted from any photograph, daguerreotype, tintype or snapshot. This is your real opportunity to perpetuate in color those who are or were dearest and nearest to you.

Please write to Dept. G-2 for a free copy of our illustrated booklet showing miniatures, frames and cases in actual sizes.

AIMÉ DUPONT GALLERY
Established 1884
509 FIFTH AVENUE, at 42nd St., NEW YORK CITY
Portraits in oil painted on canvas. Old photographs copied and restored. Send for Booklet

THIS MAGAZINE IS FROM OUR PRESSES

JUDD & DETWEILER, INC.
Master Printers

ECKINGTON PLACE AND FLORIDA AVENUE WASHINGTON, D. C.

***Keep a packet handy** in every room*

TO "Hang up Things" without marring walls, use Moore Push-Pins, 2 sizes, or Moore Decorative Push-Pins, 6 colors, 3 sizes. No hammer needed. For framed pictures, mirrors, etc., use Moore Push-less Hangers, 4 sizes.

10c
Packets
All Dealers

Moore Push-Pin Company **Philadelphia**

BROADWAY AND
FIFTH AVENUE AT
MADISON SQUARE,
NEW YORK

A SOUND INVESTMENT . . . OFFICES IN THE FIFTH AVENUE BUILDING

THERE are many reasons why so many successful businesses have been attracted to The Fifth Avenue Building. Primarily it is because it has proved, and is proving, a sound investment to maintain offices and display rooms here. Secondarily it enjoys one of the world's most famous addresses. . . . The Fifth Avenue Building is situated at the intersection of Broadway and Fifth Avenue, the very heart of the largest market history has known. Buyers from all parts of the world come here to inspect and to buy the products displayed within these walls. . . . The directory of this most modern market contains names distinguished in varied fields of business. Here buyers complete seasonal requirements in one trip in such lines as glass, pottery, men's wear, women's wear, laces, office equipment, cards and stationery, novelties, toys, and numerous other lines. . . . The building is extremely accessible. It is ten minutes to Pennsylvania Station by subway and thirteen to Grand Central. Busses and surface cars pass the doors. Elevated lines operate within two blocks' radius. The shopping and financial districts are at either hand. . . . A booth in the lobby supplies information concerning lines listed, places of amusement, and points of civic interest. An attractive restaurant on the main floor serves excellent food. . . . Allow us to show you about the building during your next trip to New York.

THE FIFTH AVENUE BUILDING

"MORE THAN AN OFFICE BUILDING"

A Garden Full of Darwin Tulips for $2.00

Few spring flowering plants rival the Darwin Tulip for brilliance of bloom. Borne on strong stems often exceeding three feet. They are a wonderful addition to the flower garden.

For **Two Dollars** we will send **50 Bulbs, Finest Mixed,** selected from fifteen named varieties.

Plant any time before the ground becomes frozen, and they will bloom from the middle of May to Decoration Day

Mail your order with Check, Money Order, Cash, or Stamps, mentioning this advertisement, and secure this exceptional collection, sent prepaid to your home anywhere in the United States.

Our 1930 Fall Bulb Catalogue sent on request

Stumpp & Walter Co

30-32 Barclay Street - - - New York

Branch Stores in

Newark, N. J.; White Plains, N. Y.; Stamford, Conn.; Hempstead, L. I.

APPROACHING . . .

The Ultimate in Radio

The **NEW ADMIRALTY SUPER-12** produced by NORDEN-HAUCK Engineers is the "Receiver Par Excellence." Distinguished for its Tone — Beauty — Long Range — Power — Selectivity — it is in fact "The Highest Class Receiver in the World."

Six Screen Grid Tubes and two 250 Super Power Tubes are used in the twelve - tube combination. Short Wave as well as Broadcast reception.

The **NEW ADMIRALTY SUPER - 12** possesses in an excelling degree the most modern advanced features in Radio Receiver design—Pre-selector tuning—grouped illuminated controls—double Push Pull audio amplification—tone shading—automatic Volume control—noise filter—tuning meter and electric clock—concert Dynamic loudspeaker, etc.

A Booklet gives complete description of this radio's most unusual specifications and contains numerous illustrations of the Receiver and the luxurious custom built cabinets.

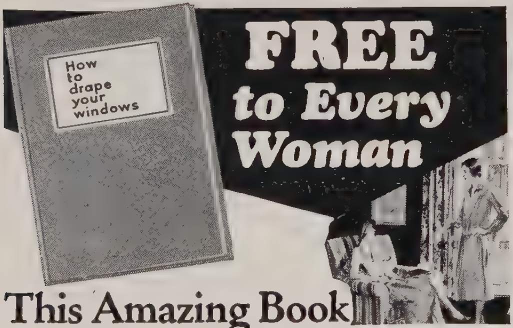
Write, telegraph or cable today!

NORDEN-HAUCK, Inc.

Engineers

Builders of the highest class
Radio Apparatus in the World

DELAWARE AVE. and SOUTH ST.
PHILADELPHIA, PA.


How to drape your windows

FREE to Every Woman

This Amazing Book on Window Draping

Prepared for women who love beautiful homes, this remarkable 80-page book answers every question regarding window draping and color harmony. Beautifully illustrated in color and worth $1.00—the book will be mailed free on receipt of the coupon below.

Kirsch
DRAPERY HARDWARE

KIRSCH COMPANY
577 Prospect Ave., Sturgis, Michigan, U. S. A.

You may send me free the new book by Kirsch, "How to Drape Your Windows."

Name..

Address..

City..............................State..............

MAN! WHERE IS YOUR SENSE OF FAIRNESS

THE FAMOUS FOOD OF CHAMPIONS

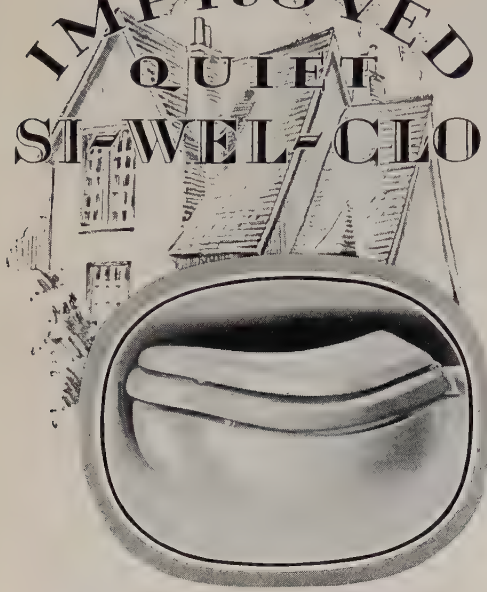
Remember your best pal . . . your dog! Treat him right! Feed him right! Give him Spratt's Dog Foods regularly! Spratt's Famous Foods are Vitalizing! Energizing! Stamina-building! Famed for their worth around the earth. Recommended by leading veterinarians everywhere. Acclaimed by dog fanciers as the best . . . and *proved* best by over 70 years of actual test. Ask for Spratt's Dog Foods. And look for "Spratt's" on the package before you buy! Sold at grocery, seed, feed and drug stores . . . and at pet shops!

★FREE! *New! Valuable 54-page book, "Hints on the Care and Feeding of Dogs," also Samples. SPRATT'S PATENT, LIMITED, Dept. N-2, 18 Congress St., Newark, N. J., or 1186 Howard St., San Francisco, Cal.*

© S. P. L. 1930

SPRATT'S DOG BISCUITS

THE IMPROVED QUIET SI-WEL-CLO



As Nature would have it!

ANOTHER milestone in bathroom progress has been reached. The Improved Quiet Si-wel-clo changed its shape to conform with well-established laws of hygiene. The ordinary level-topped seat and bowl has given way to a more comfortable saddle seat—a commode that encourages a natural sitting position and aids the organs and muscles of elimination to function properly.

Note that the decided dip in the rim elevates the front and rear of the bowl opening, minimizing the possibility of soiling.

The Si-wel-clo flushes thoroughly with a positive action, yet is uncommonly free from noisy sounds. And since it carries the Te-pe-co Trade Mark you are assured a long-lasting, brilliantly white product.

TEPECO

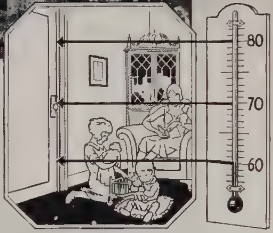
OUR GUARANTEE—We make but one grade of ware—the best that can be produced—and sell it at reasonable prices. We sell no seconds or culls. Our ware is guaranteed to be equal in quality and durability to any sanitary ware made in the world. The Te-pe-co trade mark is found on all goods manufactured by us and is your guarantee that you have received that for which you have paid.

Send 10c for our plan book No. V-4 "Bathrooms of Character"

THE TRENTON POTTERIES CO.
Trenton, New Jersey, U. S. A.
National Exhibit Rooms
101 Park Ave., New York City, Entrance on 41st St.
Sales Offices in Phila., Boston and San Francisco
Export Office: 115 Broad Street, New York City

TE-PE-CO
ALL CLAY PLUMBING FIXTURES

STOP Those Window and Under-Door DRAUGHTS



DON'T
Jeopardize Your Children's Health

In an unweather-stripped home mid-winter floor temperatures are always below the Health or Comfort Point

Beware of window and under-door drafts. They chill rooms, waste fuel. They cause colds. They're responsible for the low morning temperatures that endanger health. Unless you weather strip your home, you'll have such drafts constantly. Why? Because to permit opening and closing, every window and door must have clearance cracks equal to a hole the size of a brick. And here's where your drafts blow in. Chamberlin Weather Strips seal these cracks permanently. They save you enough in fuel besides to pay for themselves in 2 to 5 years. Chamberlin protection is sure. Exclusive factory direct-to-consumer service—only Chamberlin mechanics on the job. Lifetime satisfaction assured. Write for facts and cost estimates.

CHAMBERLIN METAL WEATHER STRIP CO., INC.
Detroit, Michigan. Over 100 Factory Branches

CHAMBERLIN WEATHER STRIPS
SINCE 1893 · THE STANDARD

Give me Chamberlin Weather Strip cost for ________ windows ________ doors.
Name ________
Address ________
FC386

NASSAU (Bahamas)

The Ideal Vacation Land

Swim from coral tinted beaches—dance in a world-famous tropical garden—golf on a superb course—tennis on championship courts—sail on opalescent seas.

The New Colonial Hotel—modern, luxurious, facing the sea, opens early in the season.

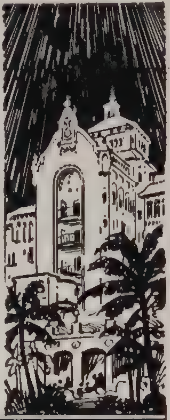
The Royal Victoria Hotel—quaint, charming, is open the year round.

A weekly service is maintained on large luxurious Munson liners. 60 hours from New York. Overnight from Miami. No passports required.

For hotel and steamer reservations, write

MUNSON STEAMSHIP LINES

67 Wall St., New York



VIOLA ROOT CAMERON
Genealogist
ESTABLISHED IN 1913
FAMILY HISTORIES COMPILED AND PUBLISHED
COATS OF ARMS
CORRESPONDENCE INVITED
521 FIFTH AVENUE, NEW YORK
56, FAUBOURG SAINT-HONORE, PARIS
57 CHANCERY LANE, LONDON

Here's the Answer

Whatever Your Question

about words, persons, places, look it up in the "Supreme Authority" . . .

WEBSTER'S NEW INTERNATIONAL DICTIONARY

452,000 Entries, 2,700 Pages, 12,000 Biographical names, 32,000 Geographical subjects, 6,000 Illustrations. Regular and India-Paper Editions. Write for specimen pages, etc., mentioning this magazine, to

G. & C. Merriam Co., Springfield, Mass.

Cash's Names

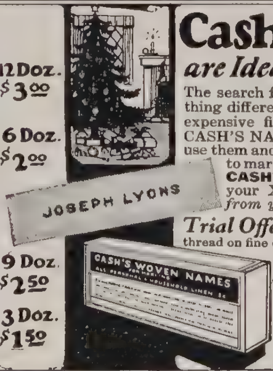
are Ideal Xmas Gifts!

12 Doz. $3.00
6 Doz. $2.00
9 Doz. $2.50
3 Doz. $1.50

The search for something unique, something different, something useful and inexpensive finds its perfect solution in CASH'S NAMES. Many of your friends use them and know they are the ideal way to mark all linen and clothing. Give **CASH'S NAMES** to everyone on your Xmas list this year. *Order from your dealer or write direct.*

Trial Offer Send 10c for one dozen of your own first name woven in fast thread on fine cambric tape.

J. & J. Cash, Inc.
530th St., So. Norwalk, Conn.
6409 So. Gramercy Pl., Los Angeles, Cal.
130 Gray St., Belleville, Ont.



COMPLETE WATER-RAIL CRUISES---
NEW YORK to CALIFORNIA
with 2½ days at PANAMA CANAL

$350 up round trip. A cruise-tour to remember always. 9 days ashore—19 days afloat. One way water, one way rail. From main line railroad points and back in either direction with stopover privileges. Meals and bed, first class, on steamer included.

Visit 10 Romantic Foreign Ports

See the gruesome cruelties of the Inquisition House at Cartagena. Visit Balboa, Cristobal, Panama City. The quaint Spanish atmosphere of San Salvador and Guatemala City and the relics of an olden Indian civilization teem with romance. Dance beneath the Southern Cross. It's a joyous trip, for the memories of strange customs, strange places, under tropical skies will linger . . . Sailings every two weeks from New York or San Francisco. $250 up one way by water. Write for illustrated booklet.

PANAMA MAIL LINE
140 So. Dearborn St., Chicago 10 Hanover Sq., N. Y.

Take a Walk Any Time You Feel Like It!

The Oftener the Better for Your Health's Sake!

With a Wood Walking Machine in your home, you can enjoy a walk any time without changing to street clothes. More real exercise in 5 minutes than in an hour's walk outdoors. Develops muscles and organs of the body. Helps fat people reduce—helps thin people put on flesh.

Makes Walking Safe!

A necessity in every home where traffic dangers and hold-up men have lessened the pleasure of outdoor walking. Fine for children, too. A unique device—an endless carpet over steel-bearing rollers. Pedometer measures distance walked. Takes up little room. Lasts a lifetime.

Send today for SPECIAL OFFER in effect for a limited time. No obligation.

Send for TRIAL OFFER

A. J. WOOD MFG. CO.
803 N.W. Ionia Avenue, Grand Rapids, Mich.

8 EUROPEAN COUNTRIES NEXT SUMMER

$535

France, Switzerland, Italy, Austria, Germany, Belgium, Holland and England. A tour in keeping with Temple Tours' 30-year reputation for reliably planned itineraries, good hotels and splendid, liberal sightseeing.

Other tours $295 to $1500. Write for complete information.

TEMPLE TOURS
441 Park Square Building, Boston, Mass.
New York • Chicago • Columbus
San Francisco • Philadelphia

You wouldn't think!

OF SIGNING YOUR NAME IN PENCIL, TO A CHECK OR AN IMPORTANT PAPER

BUT writing in everyday inks is almost as risky. It can be altered and eradicated, or faded by age, heat and moisture!

You can protect *all* your writing, at no extra cost, and impart beauty and dignity as well, by using Higgins' Eternal Black Writing Ink—permanent as the pyramids—the choice for business and personal writing of discriminating individuals everywhere.

Try it today and see its superiority!

CHAS. M. HIGGINS & CO., Inc., 271 Ninth St., B'klyn, N.Y.

Also makers of Higgins' American Drawing Inks for Half a Century

At all Dealers

HIGGINS' ETERNAL
BLACK WRITING INK

10¢

HIGGINS' Eternal black writing Ink

JET BLACK-NEVER FADES-PROOF AGAINST CHEMICALS

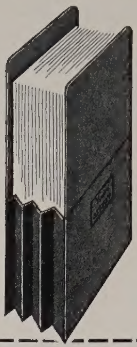
For Steel Pens & Fountain Pens

Vertex File Pockets

VERTICAL-EXPANDING

are firm, durable, expansible containers, especially constructed for the purpose of efficient vertical filing.

A Sample Pocket like this sent Free.



Learn real filing satisfaction. Use the coupon below.

Please send me for trial in my files a free sample of the Bushnell Paperoid "VERTEX" File Pocket as described in November, 1930, National Geographic.

Name of Firm____________________

Address ____________________

Name and Position of Person Inquiring____________________

Letter Size or Legal Size Desired?____________________

To ALVAH BUSHNELL CO., Dept. G
13th and Wood Streets Philadelphia

Printed Stationery
Long Style Sheets • • $2

The American Stationery "De Luxe Package" of 125 sheets, size 6⅝ by 10¼, and 125 envelopes—*all tastefully printed with your name and address*—is an extraordinary value at $2.00. The quantity is so big, the quality so good and orders are filled so promptly you are sure to be pleased. In fact, we guarantee it—or your money immediately refunded. A copy of our guarantee is filed with the National Geographic. Send $2 for a package, delivered postpaid. YOU'LL NEVER BE SORRY.

We also manufacture the famous printed package of 200 note sheets (size 6 x 7) and 100 envelopes—all neatly printed with your name and address (as described over Station WLW). Price, postpaid **$1**

The AMERICAN STATIONERY COMPANY
PERU, IND.
300 PARK AVENUE

LISTEN to the humorous and enlightening observations on "events of the day, with their relation to the past and their bearing on the future"—brought to you by Frederick Landis, in his amusing program, "The HOOSIER EDITOR," every Friday evening at 8:30 Eastern Standard Time, over **STATION WLW**

Your NATIONAL GEOGRAPHICS Deserve These Beautiful Bindings

At last—a binding that opens flat as a bound book! Now you can save shipping by binding your National Geographics at home in a few minutes and add a beautiful, permanent set of books to your library. See for yourself how superior is this patented ARENDS binding. Covers ready for years 1910 to 1930. Each holds six issues. Ten days' free trial. Mail coupon **TODAY.**

ONLY $3.45 for two volumes

$2.00 Each

MAIL COUPON FOR THIS FINE CHRISTMAS GIFT

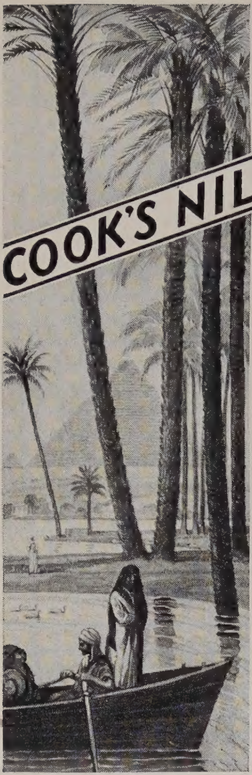
THE SUCKERT LOOSE LEAF COVER COMPANY
234 W. Larned, Detroit, Mich.

Mail me postpaid two ARENDS DeLuxe Bindings for Volumes________ National Geographic. I will remit $3.45 promptly at end of 10 days' inspection or return the binding at your expense.

Name ____________________

Address____________________

Postage prepaid in U. S., Can., Mexico. Foreign countries extra. Foreign orders must contain remittance to comply with customs. Remittance returned if bindings are not satisfactory.



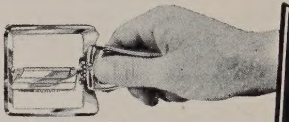
COOK'S NILE SERVICES

The Nile! . . . "like some great, mighty thought, threading a dream" . . . its shores a museum of antiquities . . . round about you the immortal glory of Pharaoh's Egypt. Cook's Own Nile Fleet is the paramount Nile service . . . most luxurious, most comfortable steamers and private Dahabeahs . . . from Cairo to the First and Second Cataracts. Regular service schedule commences November 12.

THOS. COOK & SON
587 Fifth Ave., New York
in co-operation with
WAGONS-LITS CO.

fruit cake from Hawaii

Rich in tropical fruits ~ mellow-blend of exotic flavors ~ watch your guests' response to the first taste and be rewarded. Love's real Hawaiian Fruit Cake in Hawaiian motif metal box. 5 lbs., $6.50 ~ 2¾ lbs., $3.50; post paid to any address. Love's ~ Dept. A, P. O. Box 294, Honolulu, Hawaii



KEENEX
Razor Sharpener
A unique device that grinds a new edge on the dullest razor blade and makes it as keen as ever. Use it once a week and you'll always be sure of a clean, easy shave. Does away with nuisance of daily stropping. Takes only 20 seconds to make the dullest blade so sharp that it will split a hair.

Makes Old Blades as Good as New!

Get a KEENEX Sharpener and you can use your old blades for years to come. Costs no more than an ordinary stropper, yet makes a single blade last a whole year. Pays for itself several times over in cost of blades. Guaranteed for 5 years—but lasts a lifetime. Get one today at your dealer's—or write for Special Trial Offer for a limited time.

Write for TRIAL OFFER

THE KEENEX RAZOR SHARPENER CO.
3247 Monroe Street Toledo, Ohio

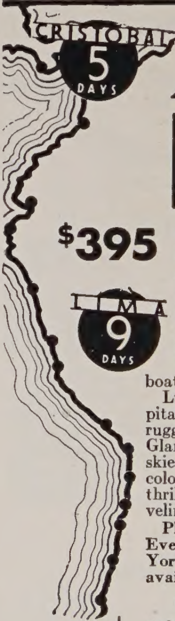
A new, *safer* way to eat Bran

DOCTORS are recommending Pettijohn's as the *safe* way to eat bran. That's because this delicious hot cereal provides whole bran concealed in tender flavory flakes of whole wheat. Thus every tiny sharp bran edge is made soft by cooking. It's safe for nervous digestions . . . non-irritating even to the tender digestive tract of a child. You'll say you never knew bran could be so gentle, so effective . . . so utterly delicious. Pettijohn's takes but 3 to 5 minutes to cook. It's made by The Quaker Oats Company, manufacturers of 49 different cereal products, with mills in 12 cities throughout the United States and Canada. Try Pettijohn's tomorrow morning!

Are you interested in new menus for children? In new recipes for whole-wheat cookies and desserts? Send for a new Free booklet, "The Truth About Bran." Address 7-11, The Quaker Oats Company, Chicago

Pettijohn's

THE NEW PETTIJOHN'S
COOKS IN 3 TO 5 MINUTES
Quaker Oats Company



21 DAY ALL-EXPENSE CRUISE TO PERU

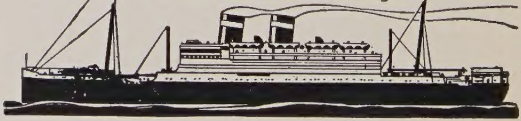
$395 FIRST CLASS, *including sightseeing and hotel expenses en route.*

THE mere thought of visiting such romantic countries as Panama and Peru sets the senses tingling and the imagination swelling with dazzling visions of the wonders of South America. You can add Colombia and Ecuador to this trip on a leisurely "Santa" boat in 35 days at no extra cost.

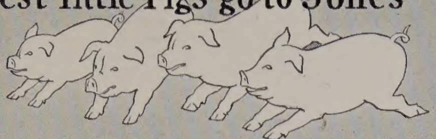
Luxurious "Santa" liners let you off at hospitable ports for glorious days among the wild ruggedness of the towering Andean Range. Glamorous nights under splendrous tropical skies urge you to seek adventure. From faint color-tinted dawn to fascinating sunset the thrills of the old world unfold before your marveling eyes.

Plan to go to South America this year. Every week a "Santa" ship sails from New York. Interesting illustrated booklets are available. Write for them.

GRACE LINE
10 Hanover Square • New York
140 So. Dearborn St. • Chicago



"Most little Pigs go to Market
But the
Best little Pigs go to Jones"



JONES
DAIRY FARM
SAUSAGE

2000 dealers all over America supply a discriminating clientele with Jones Sausage *fresh from the farm* and Jones Bacon and Ham smoked over hickory logs in the old smoke house.

JONES DAIRY FARM
Fort Atkinson, Wis.
In the heart of Wisconsin's great dairy country—owned and operated by the Jones Family since 1834.

An Everlasting Tribute..

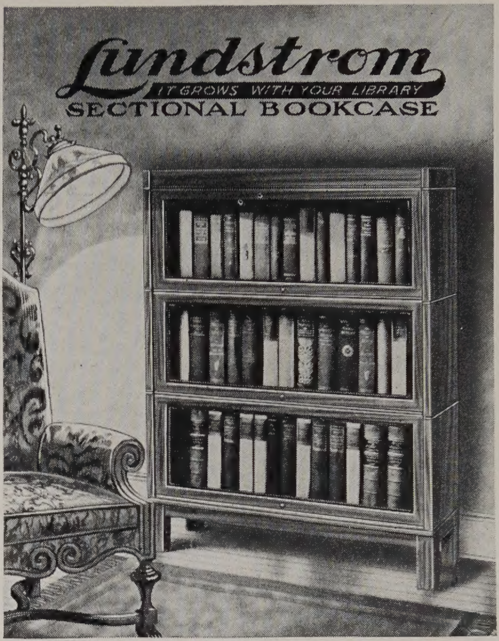
Booklet on Request

WITH imperishable beauty, Harrison memorials stand as an everlasting tribute . . . impervious to time or the elements.

Harrison Granite Co., Inc.
Established 1845
4 E. 43rd Street, at Fifth Avenue, New York City
Branch Offices:
Chicago, Detroit, Pittsburgh, Minneapolis
Works: Barre, Vermont

HARRISON MEMORIALS
COUNTRY-WIDE SERVICE

The IDEAL Bookcase
For the Modern Library

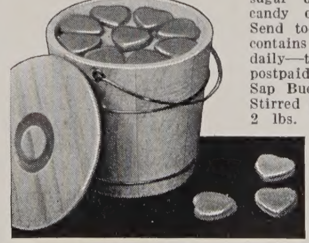


$3.75 and up per Book Section with Glass Door ON APPROVAL—Direct to User

Used in over 200,000 of the finest homes and offices throughout the country. Furnished in a number of designs, in different materials and finishes, giving almost any desired effect. Sold direct from factory only, which assures you a permanent source of supply for additional sections in the future, and also saves you the middleman's profit. Price of the case illustrated above, in Universal Design, consisting of top, base and three book sections with **non-binding, disappearing, felt-cushioned** glass doors, in plain oak, **$17.00;** in quartered oak or imitation mahogany or walnut, **$19.00;** in genuine mahogany or walnut, **$26.00.** Other styles, grades and finishes at correspondingly low prices. **Shipped on approval direct from factory** at a big saving to you. Write for Catalog No. 80.

The C. J. LUNDSTROM MFG. CO., Little Falls, N. Y.
Manufacturers of Sectional Bookcases since 1899
New York Showroom, 130 West 42nd St.

Real Vermont Maple Hearts
in a unique "Sap Bucket"



You'll love them—fresh from the heart of the maple country. Daintily packed in a unique "Sap Bucket" of natural wood, as illustrated. A true maple confection. Deliciously smooth, and rich in the tang of the sugar orchard. Novel for bridge candy or prizes—ideal for gifts. Send today for your Sap Bucket—contains 1 lb. 5 oz. net. Fresh daily—to you or to your list—$1.50 postpaid. (West of Miss. R. $1.65.) Sap Bucket of 1 lb. Grandfathers' Stirred Sugar, $1.00. Filled with 2 lbs. Pure Maple Sugar, $1.25. Price list of pure maple products and dainty confections sent free.

Maple Grove Candies, Inc.
Route 16
St. Johnsbury, Vermont

Retail credits and motor cars

MANY generations ago, when banks began to extend credit to producers of raw materials and manufacturers of finished goods, the world experienced an immense increase in production and in wealth.

This generation is witnessing a corresponding extension of credit to the individual consumer, which has stimulated the sale of goods because it has enabled the average family to enjoy greater advantages and greater comforts to an extent never paralleled.

The principle of instalment purchasing has been utilized by many lines of industry, but in none has it played such an important role as in the motor car industry, where more than 60 per cent of all cars are now sold to individuals on credit.

General Motors, back in 1919, recognized the importance of time payments in retail sales and organized the General Motors Acceptance Corporation as an independent banking institution to provide credit on a sound basis to General Motors dealers and to buyers of General Motors products. This institution has enabled more than 5 million people to enjoy their cars while paying for them out of income.

This one institution has granted more than two and one-half billion dollars of credit, based upon the inherent honesty and industry of the American people. The bulk of this vast sum has been borrowed from a group of the world's most forward-looking banks.

Without this sound credit structure and banking cooperation, the automotive industry, with all that it means to American life and prosperity, could not have become the largest manufacturing industry in the world.

GENERAL MOTORS

"*A CAR FOR EVERY PURSE AND PURPOSE*"

CHEVROLET · PONTIAC · OLDSMOBILE · OAKLAND
VIKING · BUICK · LaSALLE · CADILLAC · ALL WITH BODY BY FISHER

General Motors Trucks • Yellow Coaches and Yellow Cabs
Frigidaire—the automatic refrigerator
Delco-Light, DP water systems and delcogas
General Motors Radio • GMAC plan of credit purchase